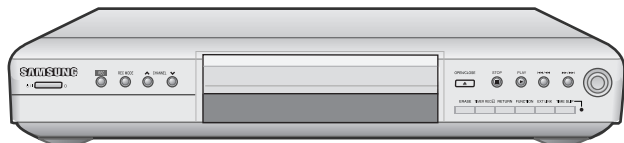


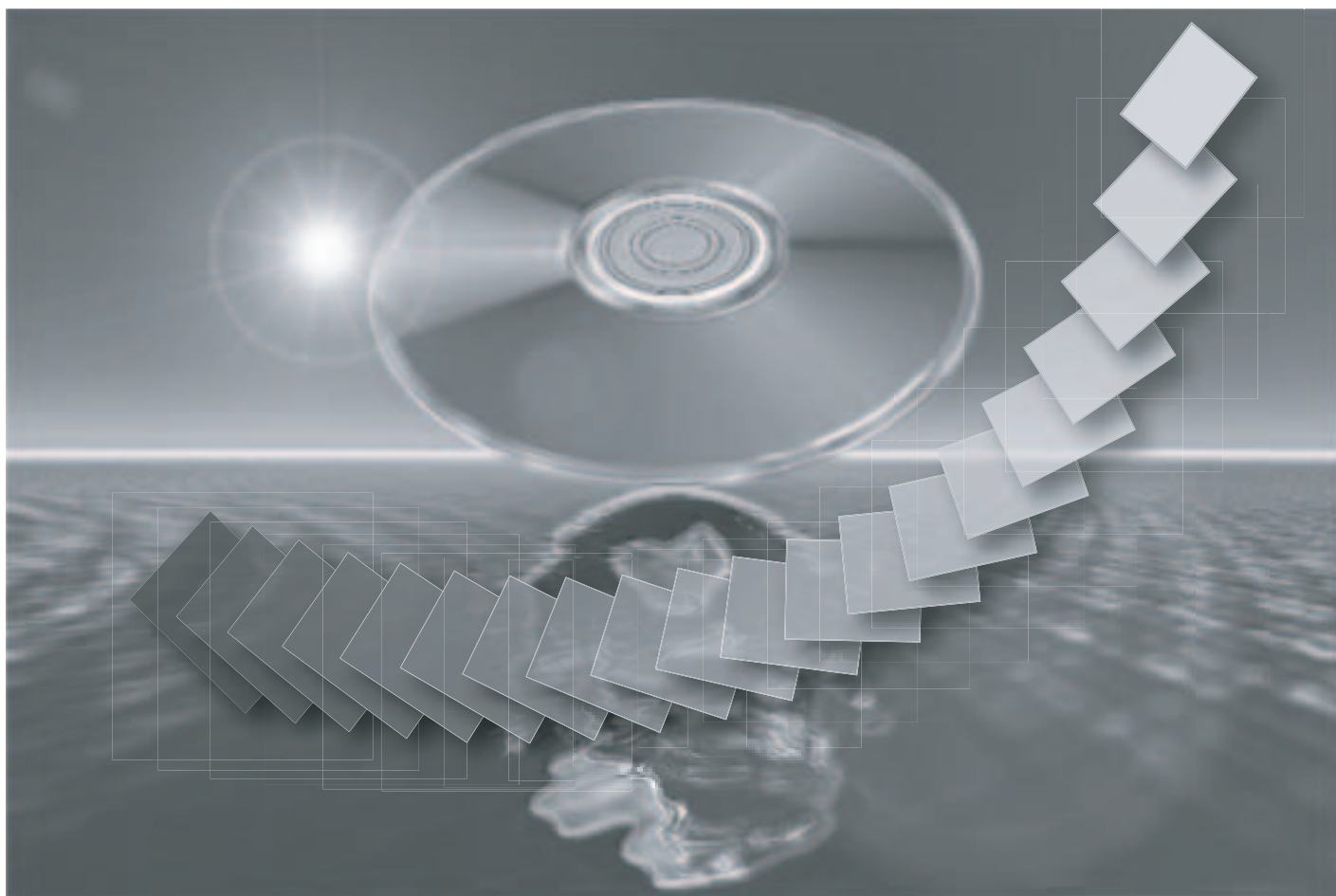
SAMSUNG



DVD Video Recorder

Operating Instructions

Model No. **DVD-R4000**



Before connecting, operating or adjusting this product, please read these instructions completely. Please keep this manual for future reference.

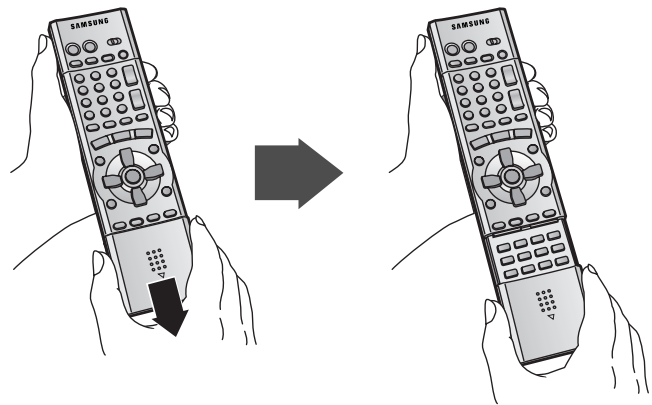
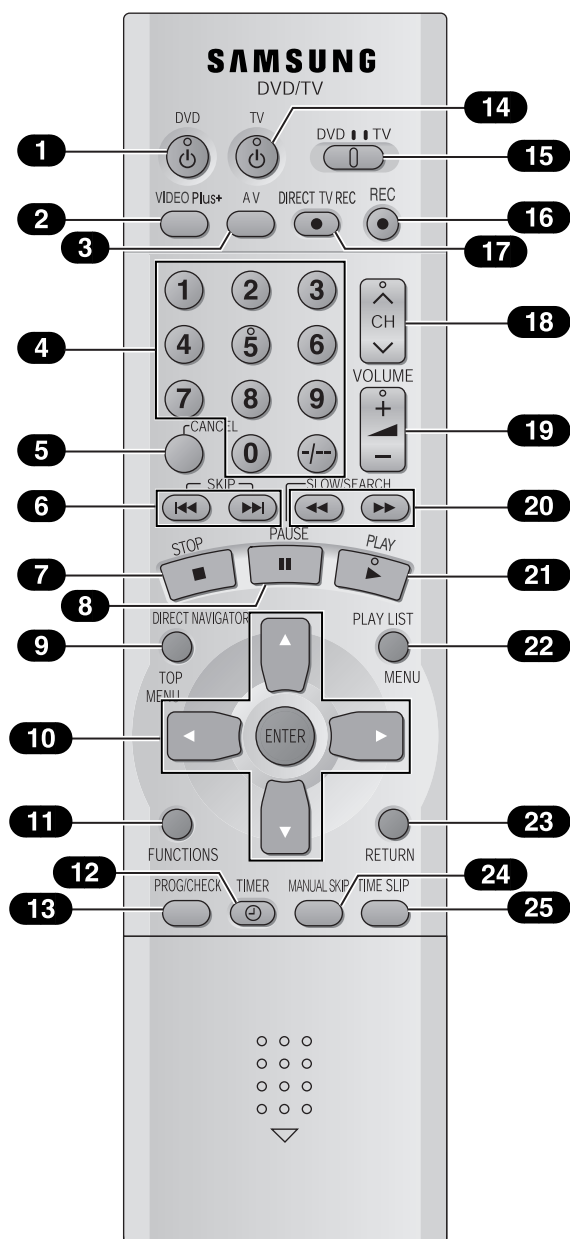
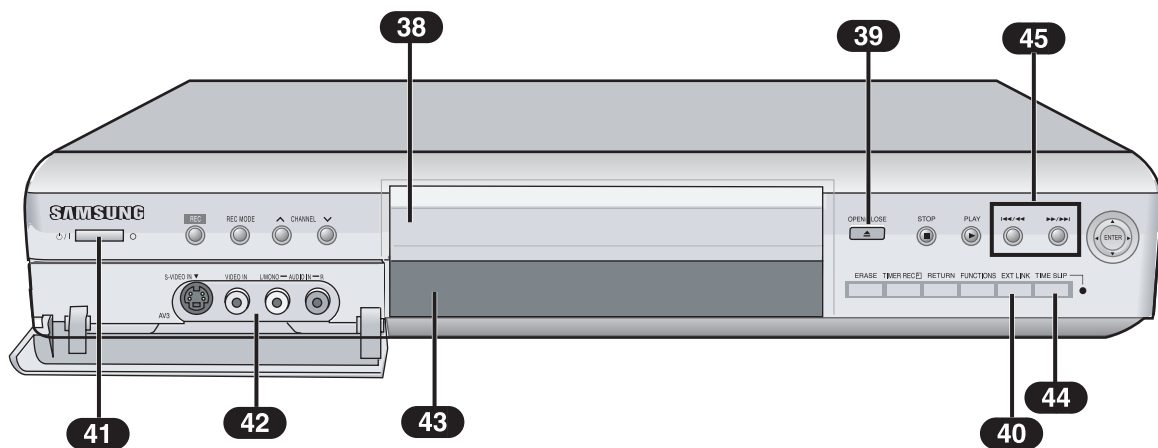
Web Site: <http://www.samsungdvd.com>

Contents

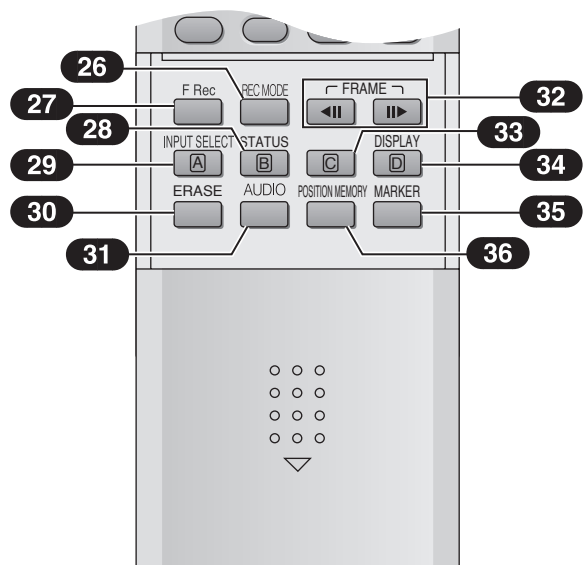
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Entering titles	37		
DISC INFORMATION	37		
Enter Title	37		
Disc Protection	38		

Keep this page open as you read through the Operating Instructions. Refer to it for the control and component names and numbers which appear in the text.

The illustration shows DVD-R4000EB for the United Kingdom.



Hold both sides of the remote control's cover to open it. (You can also open it by pressing on the center of it and sliding it down.)



Control reference guide

Remote control

	Page
1 DVD on/off button (⏻, DVD)	17
• To switch the unit from on to standby mode or vice versa. In the standby mode, the unit is still connected to the mains.	
• In standby mode, the unit is still consuming a small amount of power.	
2 VIDEO Plus+ button (VIDEO Plus+)	32
3 Television input mode selector (AV)	9
4 Numeric buttons (0–9, – / –)	9
• When selecting a title, chapter, track, programme, or play list	
Example: "5": [0] → [5]	
Example: "15": [1] → [5]	
• When selecting a page of play list scene and item of MP3	
Example: "5": [0] → [0] → [5]	
Example: "15": [0] → [1] → [5]	
• When selecting a television channel	
Example: "5": [5]	
Example: "15": [– / –] → [1] → [5]	
5 Cancel button (CANCEL)	24
6 Skip buttons (◀◀, ▶▶, SKIP)	22
7 Stop button (■)	20
8 Pause button ()	20
9 Top menu and Direct Navigator button (TOP MENU, DIRECT NAVIGATOR)	20, 41
10 Cursor buttons (▲, ▼, ◀, ▶) / Enter button (ENTER)	20
11 Function button (FUNCTIONS)	30
12 Timer recording button (⌚, TIMER)	32
13 Manual programming and check button (PROG/CHECK)	34
14 TV on/off button (⏻, TV)	9
15 DVD/TV switch (DVD, TV)	8
16 Recording button (●, REC)	26
17 Direct TV recording button (●, DIRECT TV REC)	28
18 Channel up/down buttons (▲, ▼, CH)	26
19 TV volume up/down buttons (+, –, VOLUME)	9
20 Slow/Search buttons (◀◀, ▶▶, SLOW/SEARCH)	21
21 Play button (▶)	20
22 Menu and Play List button (MENU, PLAY LIST) ...	20, 45
23 Return button (RETURN)	16
24 Manual skip button (MANUAL SKIP)	22
25 Time slip button (TIME SLIP)	30
26 Recording mode button (REC MODE)	26
27 Flexible recording button (F Rec)	27
28 Status display button (STATUS)	67
29 Input select button (INPUT SELECT)	36
30 Erase button (ERASE)	20, 47
31 Audio button (AUDIO)	23
32 Frame advance and frame reverse buttons (◀ , ▶, FRAME)	21
33 [C] button	9
34 Display button (DISPLAY)	51
35 Marker button (MARKER)	24
36 Position memory button (POSITION MEMORY)	21

Main unit

	Page
38 Disc tray	20
39 Disc tray open/close button (▲, OPEN/CLOSE)	20
40 External link button (EXT LINK)	28
41 Standby indicator	
• When the unit is connected to the AC mains lead, this indicator lights up in standby mode and goes out when the unit is turned on.	
42 AV3 input terminals (AV3)	57
43 Display	5
44 Time slip indicator (TIME SLIP)	
• While both recording and play are activated, this indicator lights up.	
45 Skip/Slow/Search buttons (◀◀/◀◀, ▶▶/▶▶)	21

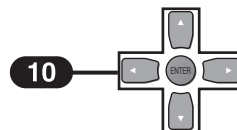
Buttons such as ① function the same as the controls on the remote control.

Entering titles

(page 37)

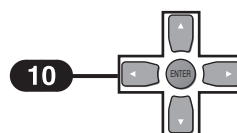
- To enter characters

Use [▲, ▼, ◀, ▶] ⑩ to select the character you want to enter and press [ENTER] ⑩.



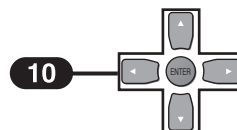
- To erase characters

Press [■] ⑧. (You can also erase characters by using [▲, ▼, ◀, ▶] ⑩ to select "ERASE" and pressing [ENTER] ⑩.)



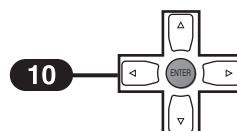
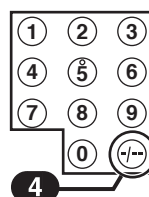
- To finish entering the title

Press [■] ⑦. (You can also finish entering the title by using [▲, ▼, ◀, ▶] ⑩ to select "SET" and pressing [ENTER] ⑩.)



- To enter a space

You may enter a space by pressing [– / –] ④ and then press [ENTER] ⑩.



The unit's display

Rotating (REC): recording
Stopped (REC): recording paused



Rotating (REC, PLAY): recording and playing simultaneously or Time Slip is in progress



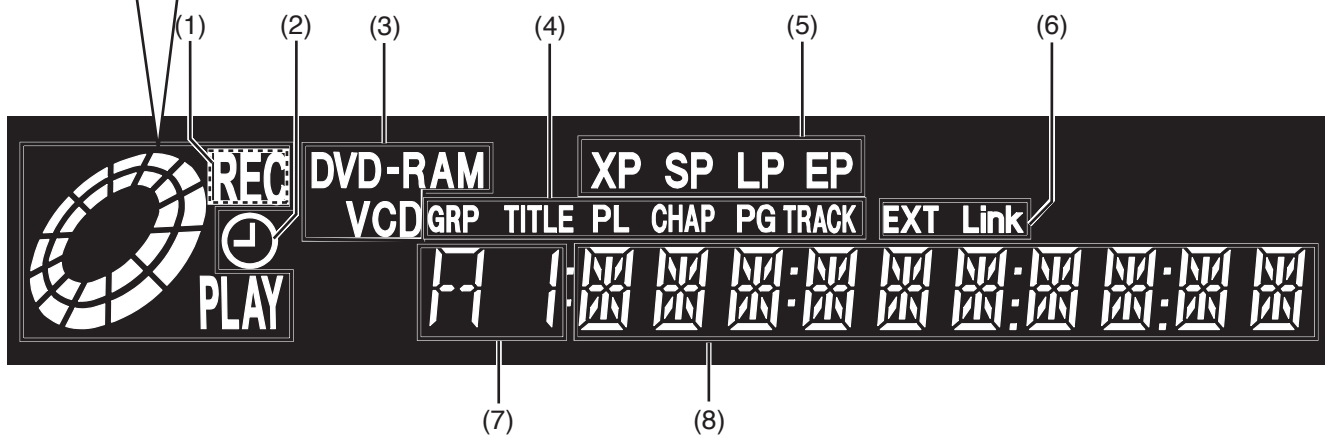
Rotating (PLAY): playing
Stopped (PLAY): play paused



Stopped (STOP):
 play stopped with the resume function



Stopped (STOP):
 play stopped without the resume function



(1) Recording indicator (REC)

On:
 while recording

(2) Timer programme display

On:
 when a programme for timer recording is on
Flashes:
 when there are less than 10 minutes to go before timer recording is programmed, but the unit is not on standby.
 (pages 32 and 34)

(3) Disc type

DVD-RAM: DVD-RAM
DVD-R: DVD-R
DVD-V: DVD-Video
VCD: Video CD
CD: Audio CD, MP3 disc

(4) The display mode of the main display section

GRP: group number
TITLE: title number
TRACK: track number
CHAP: chapter number
PG: programme number
PL: play list number

(5) Recording mode (pages 26 and 33)

XP: High-quality mode
SP: Normal mode
LP: Long play mode
EP: Extra long play mode
XP SP LP EP (all on):
 FR mode (in flexible recording or in timer recording)

(6) External link display (page 28)

On:
 when a linked timer recording with external equipment is in standby mode, or being performed

(7) Channel

1, 2, 3,, 99 / A1, A2, A3, A4

(8) Main display section

Timer recording
 Recording and play counter
 Remaining recording time
 Current time
 Title, track, chapter, group
 Miscellaneous messages
 etc.

● Remaining recording time:
 (For example)
 1 hour → Displayed as "R 1:00"

Warning and Important Information

CAUTION!

**THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR
PERFORMANCE OF PROCEDURES OTHER THAN THOSE
SPECIFIED HEREIN MAY RESULT IN HAZARDOUS
RADIATION EXPOSURE.
DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF.
REFER SERVICING TO QUALIFIED PERSONNEL.**

WARNING:

**TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR
PRODUCT DAMAGE, DO NOT EXPOSE THIS EQUIPMENT
TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND
ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH
AS VASES, SHALL BE PLACED ON THE EQUIPMENT.**

**As this equipment gets hot during use, operate it in a well
ventilated place;
do not install this equipment in a confined space such as
a book case or similar unit.**

Important

Your attention is drawn to the fact that the recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

For your safety

Do not remove outer cover.

Touching internal parts of the unit is dangerous, and may seriously damage it.

To prevent electric shock, do not remove cover. There are no user serviceable parts inside. Refer all servicing to qualified service personnel.

For your safety, be sure not to connect or handle the equipment with wet hands.

Disposal of old equipment

Batteries, packaging and old equipment should not be disposed of as domestic waste, but in accordance with the applicable regulations.



Cautions before you operate this unit

- Do not place in an enclosed area so that the rear cooling fan and the cooling vents on the side are covered up.

Avoid:

- Humidity and dust.
- Extreme heat such as direct sunlight.
- Magnets or electromagnetic objects.
- Touching internal parts of the unit.
- Water or some other liquid.
- Lightning. (Disconnect the aerial plug from the unit during lightning storms.)
- Anything heavy on the unit.
- Connecting or handling the equipment with wet hands.
- Using a cell phone near the unit because doing so may cause noise to adversely affect the picture and sound.

Do:

- Wipe the unit with a clean and dry cloth.
- Install the unit in a horizontal position.
- Keep the unit, TV and other equipment switched off until you have finished all connections.

VIDEO Plus+ and PlusCode are registered trademarks of Gemstar Development Corporation.

The VIDEO Plus+ system is manufactured under license from Gemstar Development Corporation.

MPEG Layer-3 audio decoding technology licensed from Fraunhofer IIS and Thomson multimedia.

Notes on these instructions

These operating instructions describe operations mainly using the remote control. If the name of the button is the same, the operation described can also be performed with the main unit. The contents of the screens used in these instructions may not necessarily match what you will see on your screen.

Displays

The displays shown in these instructions are examples only. Actual displays depends on the disc being played.

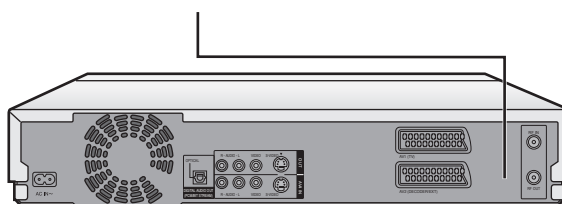
Manufactured under license from Dolby Laboratories.

"Dolby", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories.

"DTS" and "DTS Digital Out" are trademarks of Digital Theater Systems, Inc.



**LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT**



Inside of unit

DANGER	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. (FDA 21 CFR)
CAUTION	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. (IEC60825-1)
ATTENTION	- RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
ADVARSEL	- SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO!	- AVATTAESSA OLET ALTTIINA NÄKYMÄTÖN LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING	- SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRÄKTA EJ STRÅLEN.
ADVARSEL	- SYNLIG OG USYNLIG LASERSTRÅLING NÄR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
VORSICHT	- SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
注意	- 打开时有可见及不可见激光辐射。避免激光束照射。
注意	- ここを開くと可視及び不可視のレーザー光が出ます。 ビームを直接見たり、触れたりしないでください。 RQLS0233

Dear Customer

May we take this opportunity to thank you for purchasing this Samsung DVD Video Recorder.

We would particularly advise that you carefully study the Operating Instructions before attempting to operate the unit and that you note the listed precautions.



Caution for AC Mains Lead

For your safety please read the following text carefully

This appliance is supplied with a moulded three-pin mains plug for your safety and convenience.

A 5-ampere fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-amperes and it is approved by ASTA or BSI to BS 1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover, the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local Samsung Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY. THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt, please consult a qualified electrician.

IMPORTANT


The wires in this mains lead are coloured in accordance with the following code:

Blue; Neutral, Brown; Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol .

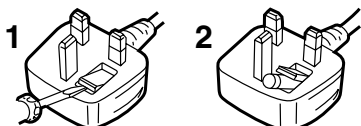
How to replace the Fuse

- There are two types of the AC mains lead assembly:

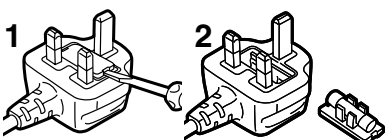
(A) and (B) as shown.

- 1 Open the fuse compartment with a screwdriver.
- 2 Replace the fuse and fuse cover.

TYPE (A)

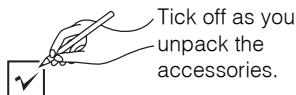


TYPE (B)

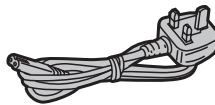


Checking the Accessories

Check that you have the accessories shown



☐ AC Mains lead



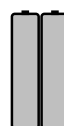
☐ Audio/Video Cable



☐ RF lead to connect VCR and TV



☐ Batteries for the Remote Control
R6 size



☐ Remote Control



☐ Guarantee Card

☐ Quick Start Guide

For United Kingdom and Republic of Ireland

www.samsungdvd.com

- Order accessory and consumable items for your product with ease and confidence by telephoning our Customer Care Centre Mon-Friday 9:00am-5:30pm. (Excluding public holidays.)
- Or go on line through our Internet Accessory ordering application.
- Most major credit and debit cards accepted.
- All enquiries transactions and distribution facilities are provided directly by Samsung UK Ltd.
- It couldn't be simpler!

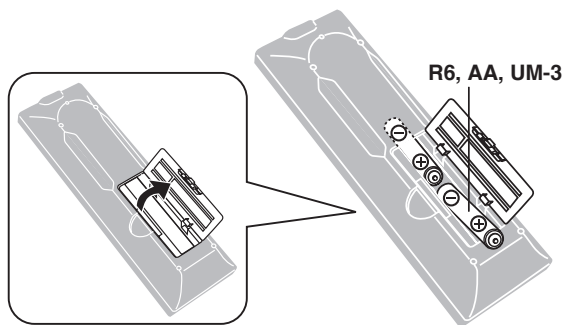
Customer Care Centre

Samsung Electronics (U.K.) Ltd.,
Euro Service Centre, Stafford Park 12,
TELFORD, Shropshire TF3 3BJ,
Tel: 0870) 242 0303, Fax: 01952) 297617

The remote control

Batteries

- Insert so the poles (⊖ and ⊕) match those in the remote control.
- Do not use rechargeable type batteries.



Do not;

- mix old and new batteries.
- use different types at the same time.
- heat or expose to flame.
- take apart or short circuit.
- attempt to recharge alkaline or manganese batteries.
- use batteries if the covering has been peeled off.

Mishandling of batteries can cause electrolyte leakage which can damage items the fluid contacts and may cause a fire. If electrolyte leaks from the batteries, consult your dealer. Wash thoroughly with water if electrolyte comes in contact with any part of your body.

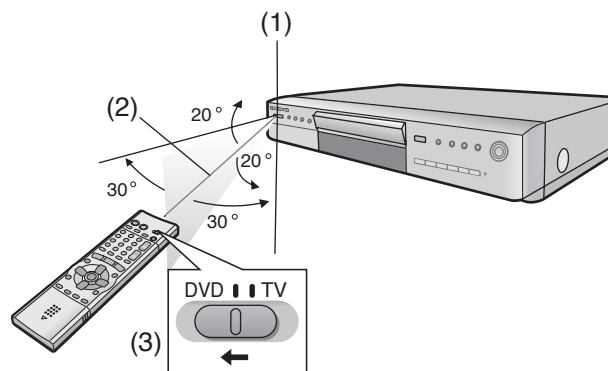
Remove if the remote control is not going to be used for a long period of time. Store in a cool, dark place.

Replace if the unit does not respond to the remote control even when held close to the front panel.

Use

Aim at the sensor, avoiding obstacles, at a maximum range of 7 m directly in front of the unit.

- Keep the transmission window and the unit's sensor free from dust.
- Operation can be affected by strong light sources, such as direct sunlight, and the glass doors on cabinets.



(1) Remote control signal sensor

(2) 7 m

(3) Switch [DVD, TV] **15** to "DVD".

Do not;


- put heavy objects on the remote control.
- take the remote control apart.
- spill liquids onto the remote control.

Television operation

You can control televisions by changing the remote control code.

Preparation


- Turn on the television.
- Switch [DVD, TV] **15** to "TV".

- 1 **Refer to the chart below for the code for your television.**
- 2 **Press and hold [TV, ] **14** and enter the two-digit code with the numeric buttons **4**.**
 - For example: 01, press [0]→[1].
 - After entering the code, test the remote control by turning on the television and changing channels.

Operation:

On and off:
Video input mode:
Channels:
Volume:
Numeric:

Button

[TV, ] **14**
[AV] **3**
[, , CH] **18**
[+, −, VOLUME] **19**
[0-9, −/−] **4**

Note

- If there is more than one code, repeat the procedure until you find the code that allows correct operation.
- Repeat this procedure after you change the batteries.
- If your television brand is not listed or if the code listed for your television does not allow control of your television, this remote is not compatible with your television.

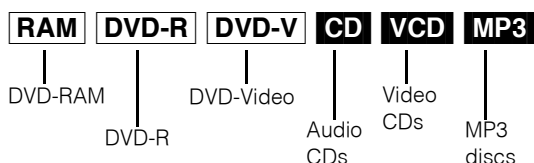
List of TVs Compatible with the unit's Remote Control

Brand:	Code
SAMSUNG	31, 32, 43
AIWA	35
AKAI	27, 30
BLAUPUNKT	09
BRANDT	10, 15
BUSH	05, 06
CURTIS	31
DESMET	05, 31, 33
DUAL	05, 06
ELEMIS	31
FERGUSON	10
GOLDSTAR/LG	31
GOODMANS	05, 06, 31
GRUNDIG	09
HITACHI	22, 23, 31, 40, 41, 42
INNO HIT	34
IRRADIO	30
ITT	25
JVC	17, 39
LOEWE	07
METZ	28, 31
MITSUBISHI	06, 19, 20
MIVAR	24
NEC	36
NOKIA	25, 26, 27
NORDMENDE	10
ORION	37
PANASONIC	01, 02, 03, 04, 44
PHILIPS	05, 06
PHONOLA	31, 33
PIONEER	38
PYE	05, 06
RADIOLA	05, 06
SABA	10
SALORA	26
SANSUI	05, 31, 33
SANYO	21
SBR	06
SCHNEIDER	05, 06, 29, 30, 31
SELECO	06, 25
SHARP	18
SIEMENS	09
SINUDYNE	05, 06, 33
SONY	08
TELEFUNKEN	10, 11, 12, 13, 14
THOMSON	10, 15
TOSHIBA	16
WHITE WESTINGHOUSE	05, 06

Discs

Discs you can use

The features you can use with the different types of discs are indicated as follows.





For your reference

- **DVD-R** indicates DVD-R that have not yet been finalized (page 40) and can still be recorded on.
- DVD-R that have been finalized can use the same features as DVD-Video. (Refer to features indicated **DVD-V**.)

Discs you can use for recording and play

Logos for the discs you can record on and play

Disc type	Logo	Regulation	Indication used in instructions
DVD-RAM		[4.7 GB / 9.4 GB, 12 cm (5")] [2.8 GB 8 cm (3")]	RAM
DVD-R		4.7 GB for General Ver.2.0	DVD-R

The manufacturer accepts no responsibility and offers no compensation for loss of recorded or edited material due to a problem with the unit or disc, and accepts no responsibility and offers no compensation for any subsequent damage caused by such loss.

Examples of causes of such losses are

- (1) A disc recorded and edited with this unit is played in a DVD Recorder or computer disc drive manufactured by another company.
- (2) A disc used as described in (1) and then played again in this unit.
- (3) A disc recorded and edited with a DVD Recorder or computer disc drive manufactured by another company is played in this unit.

Note

- This unit is compatible with the Content Protection for Recordable Media (**CPRM**) system so you can record broadcasts that allow one copy, such as some CATV broadcasts, onto 4.7 GB/9.4 GB DVD-RAM (these are CPRM compatible). It is not possible to record onto DVD-R or 2.8 GB DVD-RAM.
- Do not allow the disc to become dirty or scratched. Fingerprints, dirt, dust, and scratches on the recording surface may make it impossible to use the disc for recording.
- If you use DVD-RAM cartridges, you can protect your recordings with the write protected tab (page 72). With the tab in this position, you cannot record to the disc, delete programmes with the direct navigator, edit with the play list screen, or format the disc.
- This unit is compatible with both non-cartridge and cartridge DVD-RAM, but cartridge-type discs give better protection to your valuable recordings.




For your reference

- **DVD-RAM recorded on this unit cannot be played on incompatible players (including players manufactured by Samsung).**
- This unit cannot record PAL signals to discs containing NTSC signals or vice versa.

- This unit cannot record to discs containing both PAL and NTSC signals. Play of discs recorded with both PAL and NTSC on another unit is not guaranteed.

Play-only discs

Discs you can play-only and their logos

Disc type	Logo	Video system	Indication used in instructions
DVD-Video		PAL / NTSC	DVD-V
Audio CD		—	CD
Video CD		PAL / NTSC	VCD
CD	—	—	MP3

Region Management Information (DVD-Video only)

Region number are allocated to DVD players and software according to where they are sold.

- **For the United Kingdom : "2"**

DVD-Video can be played on this unit if their region number is the same or includes the same number, or if the DVD is marked "ALL". Confirm the region number for this unit before choosing discs. The number for this unit is indicated on the rear panel of the unit.



Playing CD-R and CD-RW

This unit can play CD-DA (digital audio), MP3 and Video CD format, audio CD-R and CD-RW that have been finalized upon completion of recording.

It may not be able to play some CD-R or CD-RW due to the condition of the recording.

Note

- The producer of the material can control how these discs are played. This means that you may not be able to control play of a disc with some operations described in these operating instructions. Read the disc's instructions carefully.

Discs that cannot be played

- DVD-Video with a region number other than the number for this unit or "All"
- Some DVD-R
- DVD-RAM (2.6 GB/5.2 GB)
- DVD-ROM
- DVD-RW
- DVD-Audio
- +RW
- CD-ROM
- CDV
- CD-G
- CVD
- SVCD
- SACD
- MV-Disc
- PD
- Photo CD
- Divx Video Disc, etc.
- Play of non-standard Video CDs and Super Video CDs is not guaranteed.

DVD-R

You can play DVD-R on compatible DVD players by finalizing [the process that allows recordings on DVD-R to be played on compatible DVD players, (page 40)] them on this unit, effectively making them into DVD-Video.

Before finalizing

You can record onto the available space on the disc and perform editing functions, such as giving titles to discs and programmes and erasing programmes.

You cannot record to or edit DVD-R with this unit if it was recorded with another unit, whether it is finalized or not.

You cannot record over parts that have been recorded.

Erasing programmes will not increase the disc's available time.

After finalizing

The video and audio is recorded according to the DVD-Video specifications, and your very own DVD-Video is created.

- The titles you entered with this unit appear as menus.
- Programmes longer than 5 minutes are divided into 5-minute chapters.
- These DVD-R can no longer be recorded on or edited.
- These DVD-R can be played on other DVD players, but this is not guaranteed.

Play may not be possible due to the player you are using, the DVD-R, or the condition of the recording. Use this unit to play the disc if the player is unable.

For your reference

- It takes about 30 seconds for the unit to complete recording management information after recording finishes.
- To record on DVD-R, this unit optimizes the disc for each recording. Optimizing is carried out when you start recording after inserting the disc or turning the unit on. Recording may become impossible after the disc is optimized more than 50 times.
- The first 30 seconds of a programme may not be recorded if you make successive timer recordings.
- The video is recorded in a 4:3 aspect irrespective of the video signal input. Use the television's screen modes to change the screen size for play.
- Some broadcasts carry signals that allow you to make one copy, but you cannot record these broadcast with DVD-R. Use DVD-RAM to record these kinds of broadcast.
- Play may be impossible in some cases due the condition of the recording.
- You cannot change audio type if a DVD-R is in the unit. Select the audio type (M1 or M2) before recording by going to "Bilingual Audio Selection" in the "Sound" menu.

Audio format logos



Dolby Digital (pages 54 and 69)

This unit can play Dolby Digital in stereo (2 channels). Connect an amplifier with a built-in Dolby Digital decoder to enjoy surround sound.



DTS Digital Surround (pages 54 and 69)

Connect this unit to equipment that has a DTS decoder to enjoy DVDs with this mark.

Types of disc for the type of connected TV

When you use the discs recorded either PAL or NTSC, refer to this table.

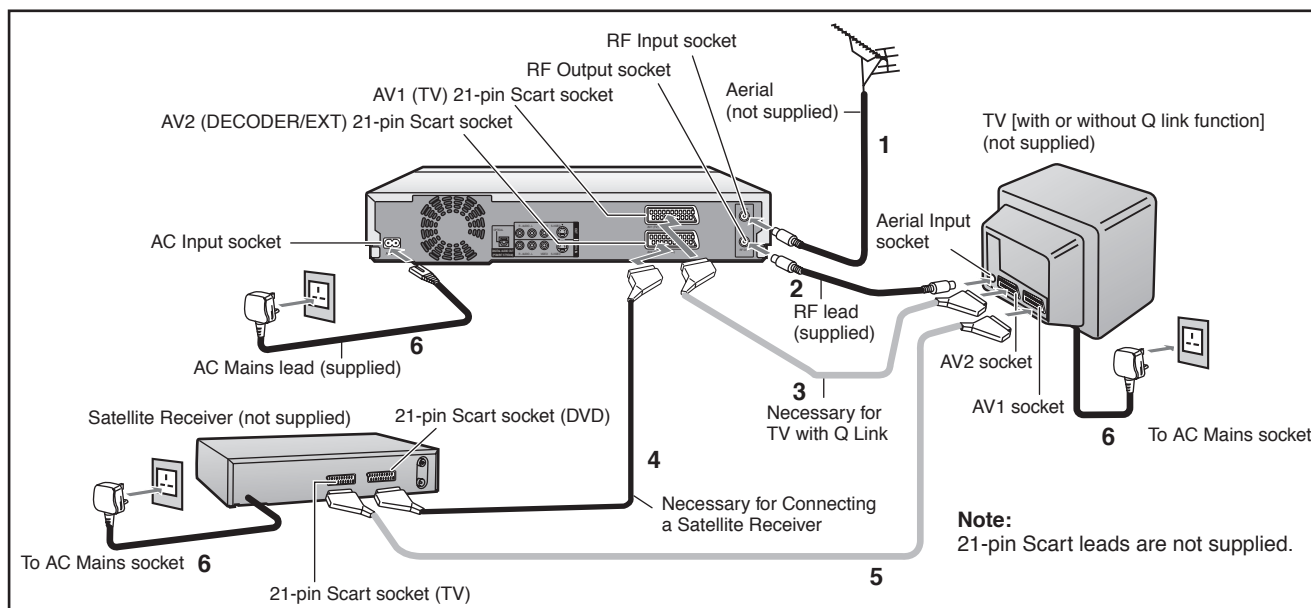
TV type	Disc	Yes/No
Multi-system TV	PAL	Yes
	NTSC	Yes
NTSC TV	PAL	No
	NTSC	Yes* ¹
PAL TV	PAL	Yes
	NTSC	Yes* ² (PAL60)

*¹ If you select "NTSC" in "TV System" (page 61), the picture may be clearer.

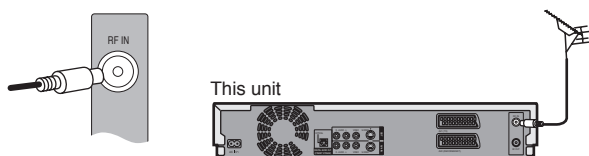
*² If your television is not equipped to handle PAL 525/60 signals the picture will not be shown correctly.

Connections (with Scart leads)

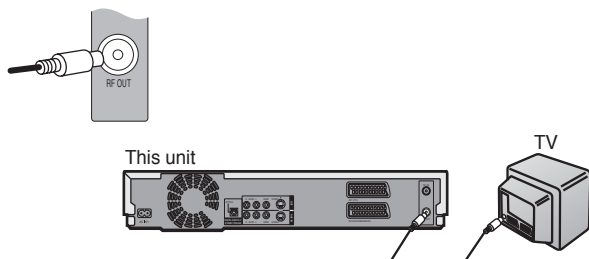
Follow the step-by-step guide below.



- 1 Connect the aerial to the RF Input socket of the DVD Recorder.**

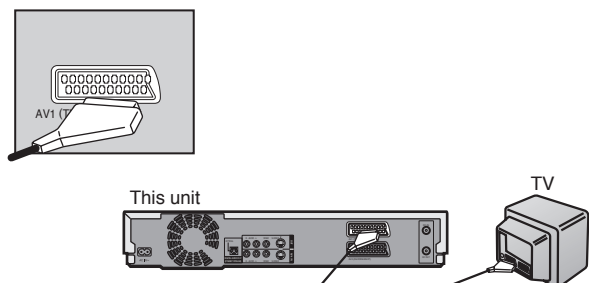


- 2 Connect the RF lead from the RF Output socket of the DVD Recorder to the TV aerial input socket.**

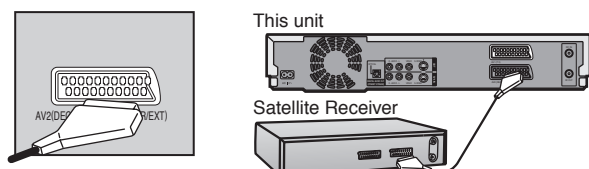


- 3 Connect the AV1 21-pin scart socket to TV scart socket (optional).**

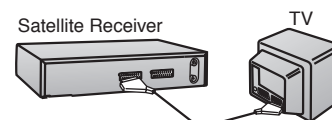
- This is necessary for Download from TV with Q Link function.
- If you use Panasonic TV with RGB output capability and want to receive RGB signals, connect this unit to the AV1 socket on the TV.



- 4 Connect the AV2 21-pin scart socket to the DVD Recorder Scart Socket on your Satellite Receiver/ Digital Sat receiver. If you are not connecting a Satellite Receiver, skip this step. (See pages 15, 56)**



- 5 Connect the TV scart socket of your Satellite Receiver to the AV1 scart socket of your TV (optional). If you are not connecting a Satellite Receiver, skip this step.**



- 6 Plug the TV, DVD Recorder and Satellite Receiver into the mains as shown at top of the page.**

Hint

- Q Link offers a range of convenient functions. For example, downloading of the tuning positions of all available television stations into your unit's memory if you connect the unit to your television with a fully wired 21-pin Scart cable (not supplied). Features similar to Q Link have different names and may not work the same.
 - [Q Link] is a registered trademark of Panasonic.
 - [DATA LOGIC] is a registered trademark of Metz.
 - [Easy Link] is a registered trademark of Philips.
 - [Megalogic] is a registered trademark of Grundig.
 - [SMARTLINK] is a registered trademark of Sony.

For details, refer to your television's operating instructions or consult your dealer.

- Unlike in most commercially available 21-pin Scart cables, all 21 pins of one plug on a fully wired 21-pin Scart cable are connected to the matching pins on the other end of the cable.

Reference:

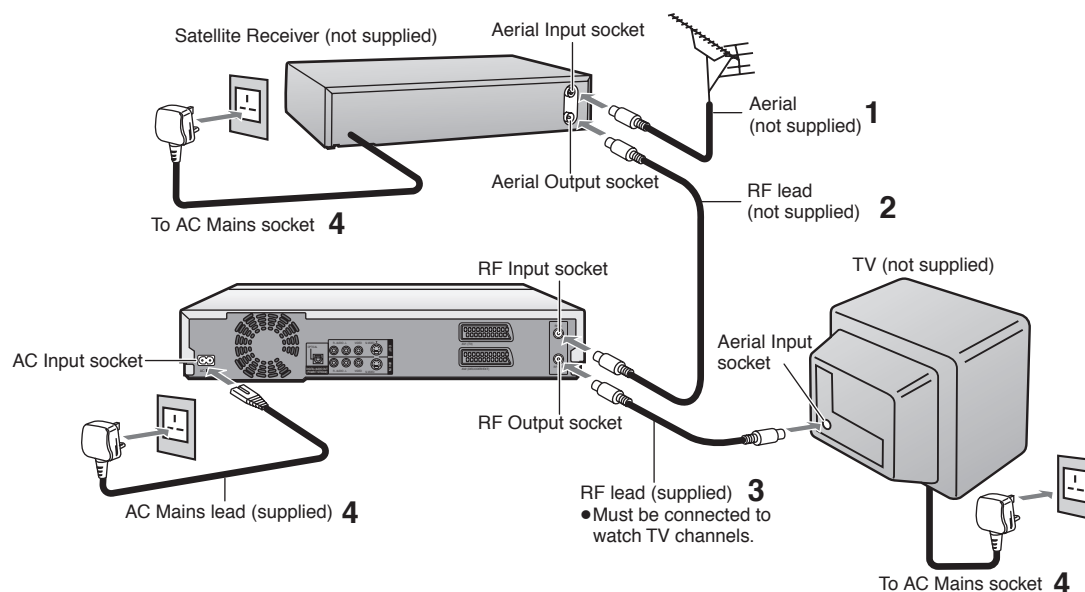
- If the TV set is equipped with a 21-pin scart socket that features Y/C signal separation, set the "AV1 Output" to "S-Video" (see page 61) so that you can play back with high picture quality and use a fully-wired 21-pin Scart lead (not supplied) to connect the DVD Recorder to the TV.

Connections (without Scart leads)

If you do not have any scart leads and your TV is not Q Link type, you can connect your DVD Recorder to a TV and Satellite Receiver using RF leads.

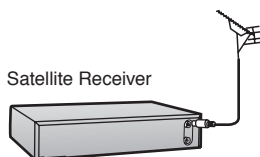
Using this connection method may however be difficult to obtain a clear picture from the Satellite Receiver. For this reason it is not recommended for inexperienced users.

(See preferred connection on page 12.)

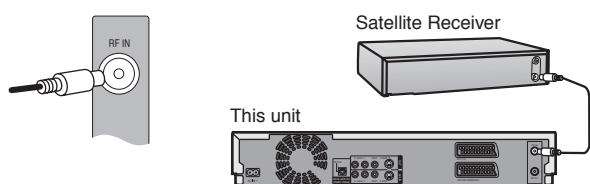


1 Connect the aerial to the aerial input socket of the Satellite Receiver.

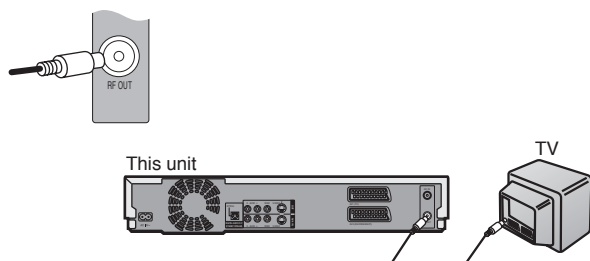
- If you do not have a Satellite Receiver, connect the aerial to the RF Input socket of the DVD Recorder and go to step 3.



2 Connect the aerial from Satellite Receiver to the RF Input socket.



3 Connect the RF Output socket to the TV aerial socket.



4 Plug the TV, DVD Recorder and Satellite Receiver into the mains as shown at top of the page.

Note

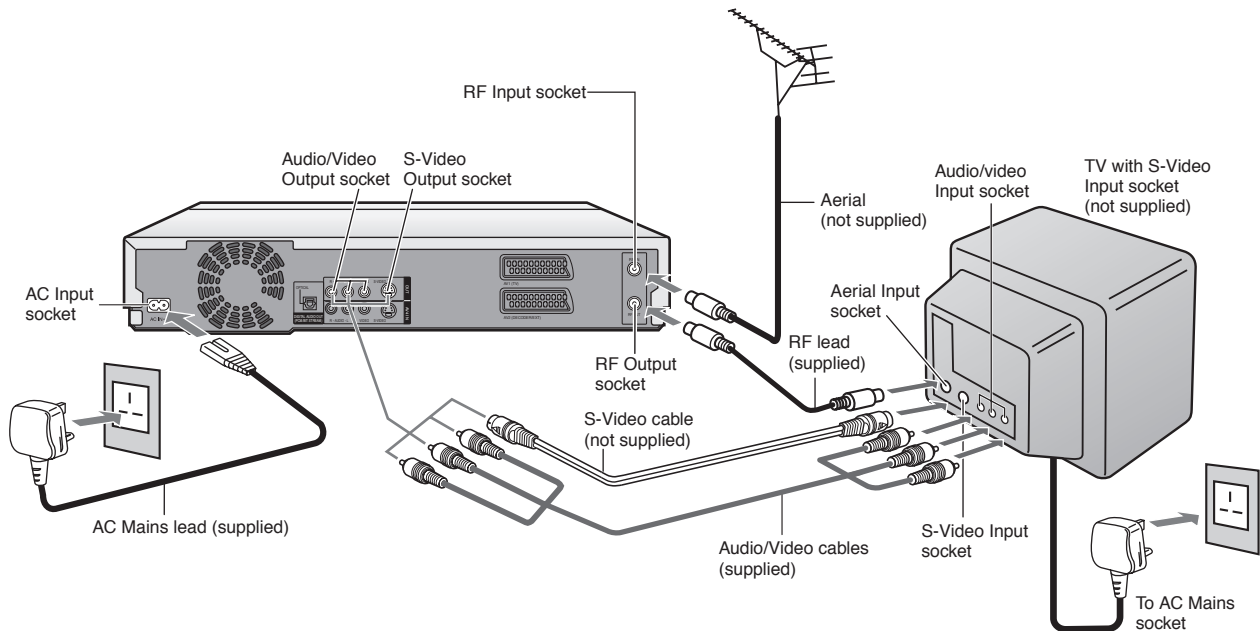
- If you have an analogue satellite receiver, select [SKY ONE] or [SKY NEWS] on the receiver before starting Auto Setup. After Auto Setup is complete, the satellite position will be shown as [SAT] in the channel listing to denote programmes from the satellite receiver.
- If you have a digital satellite receiver, you can start Auto Setup with the receiver set to any channel. We recommend to manually name the [SAT] position after Auto Setup is complete. (See page 64.)

Connections (with S-Video cable)

Connections and preparations for a TV with S-Video socket.

The conventional video sockets of DVD Recorder's output (input) a combination of the luminance signal (Y) and colour signal (C) which are recorded on the disc. The S (Separate)-Video socket allows separate transmission of signals in order to obtain clearer pictures.

The connection with S-Video Cable can also be used for playback of any disc. The "S" in the "S-Video socket" stands for "SEPARATED Y/C" not for "S-VHS".



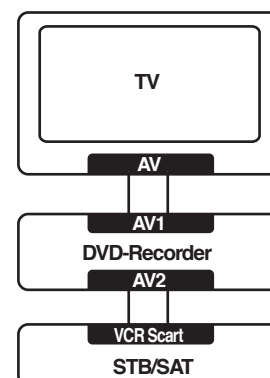
Recording from Set Top Boxes (STB) or other Satellite Receivers (SAT)

■ Recording video signal by “Sky personal Planner” and “External Link 1” Functions

To record programmes from satellite receiver using “Sky Personal Planner” function together with the “External Link1” function of this DVD Recorder:

- Make connections as shown.
- Change the settings in the SETUP menu as follows (page 61).
 - “AV2 Input” set to “Video”
 - “AV2 Connection” set to “Ext Link 1”
 - “AV1 Output” set to “RGB” or “S-Video” or “Video” to suit the AV terminal of your TV.
- Set up Personal Planner programmes as required.
- Press [EXT LINK] **40** on the DVD Recorder.

“External Link1” function can only be used with the “Sky Personal Planner” function for timer recording of video signal from the “VCR Scart” terminal of the Sky Digital Set Top Box.



■ Recording RGB Signals

Most Satellite Receivers are capable of outputting RGB signals for viewing on television through a Scart terminal (called “TV Scart” on a Sky Digital STB).

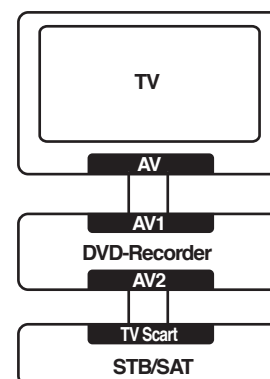
In the case of a Sky Digital STB, recording of RGB signals from the “TV Scart” terminals is possible, but the “Personal Planner” function for timer recording cannot be used in conjunction with the “External Link1” function of this DVD Recorder.

To record programmes by RGB signals:

- Make connections as shown.
- Set your Sky Digital STB to output “RGB” signals.
- Change the settings in the SETUP menu as follows (page 61).
 - “AV2 Input” set to “RGB”
 - “AV2 Connection” set to “NORMAL”
 - “AV1 Output” set to “RGB” or “S-Video” or “Video” to suit the AV terminal of your TV.
- Set up Personal Planner programmes as required.
- Follow the steps for setting up timer programming.

After setting Personal Planner programmes as required, Sky Digital STB must be left on (not set to standby) to ensure continuous output of RGB signals.

It is not possible to use the “External Link 1” function of the DVD Recorder for timer recording of RGB signals from the Sky Digital STB.



Auto Setup (with Q Link Functions)

If you do not have a Q Link TV, ignore this page and go to page 17.

The Preset Download function can automatically copy the tuning position of all available TV stations into the DVD Recorder's memory when you connect the DVD Recorder using a fully-wired 21-pin Scart lead to a TV equipped with the Q Link function.

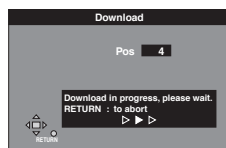
To Set Up this DVD Recorder with a brand-new Q Link TV

Perform the following operation steps exactly as described to ensure that the Preset Download function works correctly.

- First of all, make sure that the DVD Recorder is switched off.

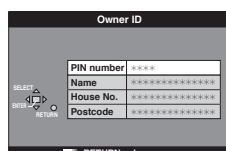
- START**  **1 Switch the TV on. The TV automatically starts to tune all available TV stations and to adjust the clock. (This is called Auto Setup function.)**

- When the TV has finished its own auto setup, the DVD Recorder is automatically switched on, and the downloading of the setup data from the TV to the DVD Recorder starts.



Indication during downloading

- 2 Switch [DVD, TV] **15** to "DVD".**
- 3 When Download has finished, the screen for the Owner ID setting menu appears. Press **[▶]** **10** and the numeric buttons **4** to enter a 4-digit PIN number.**
- Make sure that you will remember the PIN number (make a note of it).



Menu for Owner ID setting

- 4 Press [ENTER] **10** and [**▼**] **10**. The cursor moves to "Name".**
- 5 Press **[▶]** **10**.**
- 6 Press [**▲**, **▼**, **◀**, **▶**] **10** to select a letter and then press [ENTER] **10**. Repeat this to enter the name.**
- 7 Enter "House No." and "Postcode" in the same way.**
- 8 Press [RETURN] **23** to make the Owner ID setting disappear.**

FINISH 

Hint

- If the "Download" indication is not appear, select the AV input on your TV.

Note

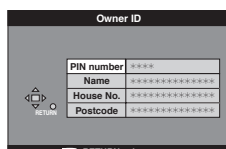
- The explanations in this book refer to Panasonic Q Link TV and DVD Recorder, however they may also apply to other makes of TV and DVD Recorder with similar functions to Q Link. (See page 12 for details.)
- If you accidentally switch on the DVD Recorder before the TV, downloading of the setup data from the TV may not be performed correctly. In this case, follow the steps below.
 - 1) Wait until the Auto Setup is complete on both the TV and the DVD Recorder.
 - 2) Press [FUNCTIONS] **11** to display the FUNCTIONS window on the TV screen and then use [**▲**, **▼**, **◀**, **▶**] **10** to select "SETUP" and press [ENTER] **10**.
 - 3) Use [**▲**, **▼**, **◀**, **▶**] **10** to select "Tuning" and then "Download".
 - 4) Press [ENTER] **10** and select "Yes". Downloading of the setup data from the TV to the DVD Recorder starts.
 - 5) When the programme position and the current time appear in the DVD Recorder display, downloading is complete.

To Set Up this DVD Recorder with an existing Q Link TV

- 1 Switch the TV on.
- 2 Select the AV input on your TV.
- 3 Switch [DVD, TV] **15** to "DVD".
- 4 Press [**1**] to switch the DVD Recorder on. Downloading of the setup data starts automatically.



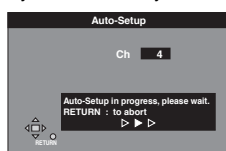
- 5 To set up the Owner ID, repeat the steps 3-8 on the previous page.



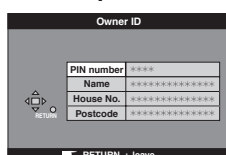
Auto Setup (without Q Link Functions)

Auto Setup automatically tunes all available stations and sets the DVD Recorder's clock to the current date and time.

- 1 Switch the TV on.
- 2 Select the AV input on your TV.
- 3 Switch [DVD, TV] **15** to "DVD".
- 4 Press [**1**] to switch the DVD Recorder on.
 - Auto Setup starts. This takes about 5 minutes.
 - (If connected to your TV using the RF lead only)
Select an unused channel pre-set on your TV and tune it to the RF output channel number shown on the DVD Recorder display (or until you can clearly see the Auto Setup screen). Store the new video playback channel (refer to the instructions for your TV).



- 5 To set up the Owner ID, repeat the steps 3-8 on the previous page.



When no stations have been set, confirm all connections and restart Auto Setup

See page 65 and Hint below.

To restart Auto Setup

- You can restart Auto Setup, without using remote controller, by pressing some buttons on the front of the unit. Hold down [**^**, CH] **18** and [**v**, CH] **18** on the main unit simultaneously for about 5 seconds.

Removing Interference

TV screen

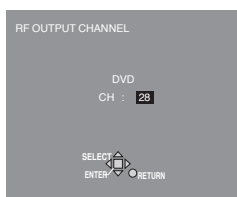


The picture with interference

In some cases, interference (lines or patterning) or a very poor picture may appear on the TV when the DVD Recorder is connected. If this happens, follow the steps below to change the video playback channel (RF output channel) to remove the interference.

- 1 Switch [DVD, TV] **15** to "DVD".
- 2 Press [FUNCTIONS] **11** for more than 5 seconds. The RF output channel number is displayed on the unit display.
- 3 Press the numeric buttons **4**, [Δ , ∇] **10** or [Δ , ∇ , CH] **18** to select a channel number, which differs by 2 or 3 from the present channel number. (For example, if the original channel number was 28, enter 31.)

<Before Changing>



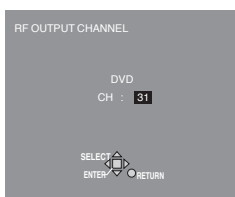
Test pattern indication

Unit display



Indication when the RF output channel is 28 (example)

<After Changing>



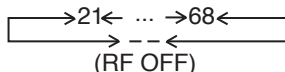
Test pattern indication

Unit display



Indication after changing the RF output channel to 31 (example)

- Set the RF output channel of the DVD Recorder to [—] (RF OFF) when the DVD Recorder is connected to the TV via the 21-pin Scart cable. Press the numeric (0) button **4** or [Δ , ∇ , CH] **18** to display [—]. Skip the step 4, if using a 21-pin Scart cable.



- 4 Retune your TV until you receive the Test pattern (see above illustration). It may be necessary to repeat steps 2 and 3 above until you can see the Test pattern clearly.
- 5 Press [ENTER] **10** to finish this setting.



The clear picture

Video Plus+ Codes for Satellite Receivers/Cable TV

For the United Kingdom:

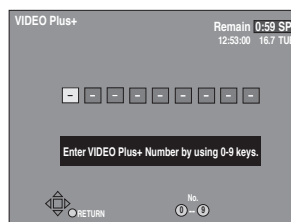
This unit is not designed to control (switch on or change channel) your satellite receiver or Cable TV box, however, it can be taught to recognise Video Plus+ Codes for Satellite stations. The Satellite receiver or Cable TV box must be switched on and the correct station selected. Some receivers have their own timer facility for this purpose. Please refer to your Satellite Receiver/Cable TV box instructions for use of such timer facilities.

For your unit to recognise the Video Plus+ Codes for each satellite station, you must teach your unit which channel or AV input to record from for the first time. Otherwise when setting a VIDEO Plus+ recording, the [—] symbol will appear in the channel position indicating that the unit does not know which channel position to set. Once you have set the channel/AV input once the unit will remember it whenever you use a Video Plus+ Code for the station again.

Preparation

- Turn on the television.
- Switch [DVD, TV] **15** to "TV".

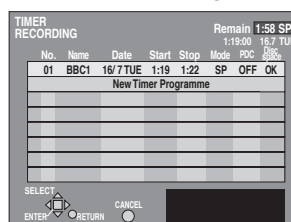
- 1 Turn on the TV and the unit. Select video playback channel on the TV.
- 2 Press [VIDEO Plus+] **2**.



- 3 Enter a Video Plus+ Code from a Satellite TV Guide for a satellite channel, e.g. Sky 1 using the numeric buttons **4**. If you make a mistake, use [\leftarrow] **10** to go back.
- 4 Press [ENTER] **10**. [—] will appear instead of a channel number/AV input.
- 5 Use [Δ , ∇ , \leftarrow , \rightarrow] **10** to select the channel or AV input that is to be used for recording from the satellite channel.
- 6 Press [ENTER] **10** to memorise the setting. The unit will now automatically set the programme position or AV input correctly when a VIDEO Plus+ recording is set for this satellite station in the future.



- 7 Use [Δ] **10** to select the programme that you have just set. Now press [CANCEL] **5** to delete it from the timer recording list. It is no longer needed.



- 8 Repeat steps 2—7 above until you have set and deleted dummy timer recordings for each of the satellite stations that you will make VIDEO Plus+ recordings from.
- 9 Press [RETURN] **23** when you have finished.

Selecting TV screen type

The aspect ratio is factory set to 4:3 for a regular television. You do not have to change this setting if you have a regular 4:3 aspect television.

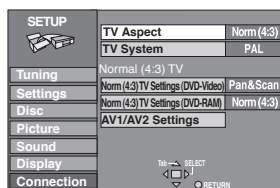
Preparation

- Turn on the television and select the appropriate video input to suit the connections to this unit.
- Switch [DVD, TV] **15** to "DVD".

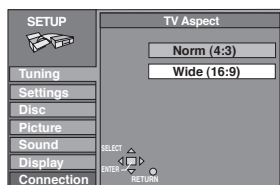
- 1 Press [DVD,] **1** to turn this unit on.
- 2 Press [FUNCTIONS] **11** to show the FUNCTIONS window.
- 3 Use [], [], [], [] **10** to select "SETUP" and press [ENTER] **10**.



- 4 Use [], [] **10** to select the "Connection" and press [] or [] **10**.
- 5 Use [], [] **10** to select "TV Aspect" and press [ENTER] **10**.



- 6 Use [], [] **10** to select the TV aspect and press [ENTER] **10**.



- 4:3 (factory setting)
- 16:9

■ To return to the previous screen

Press [RETURN] **23**.

For your reference

Apart from "TV Aspect", other settings also affect how video appears on your television. Check the following if video doesn't appear correctly on your television.

- "Connection" — "Norm (4:3) TV Settings (DVD-RAM)" or "Norm (4:3) TV Settings (DVD-Video)" (page 61).
- The video setting on the disc. How video appears is often specified by the disc itself.
- The video settings on your television.

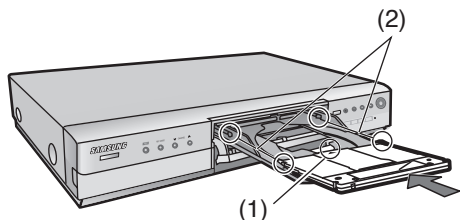
Playing discs

RAM DVD-R DVD-V CD VCD MP3

Preparation

Switch [DVD, TV] **15** to "DVD".

- 1 Press [DVD,] **1** to turn the unit on.
- 2 Press [], OPEN/CLOSE] **39** to open the tray and insert a disc.



e.g.: DVD-RAM

- (1) Arrow pointing inwards.
- (2) Align correctly.
 - Insert label-up with the arrow facing in. (With double-sided discs, load so the label for the side you want to play is facing up.)
 - Insert inside the tray's guides.
 - Insert one disc only.
- 3 Press [] **21**.
 - The disc tray closes and play begins. (The unit takes some time to read the disc before play starts.)
 - If the Resume function (page 21) is not active, playback will begin from the most recently recorded programme.
 - If you insert a DVD-RAM with the write-protect tab set to "PROTECT" (page 72) and press [], OPEN/CLOSE] **39**, play starts automatically.



To stop play

Press [] **7**. (page 21, Starting play from where you stopped it)

- A screen similar to the illustrated may appear when you stop play. Press [] **7** again and you can use this unit's tuner to watch television. This screen is also shown when you are playing CDs.

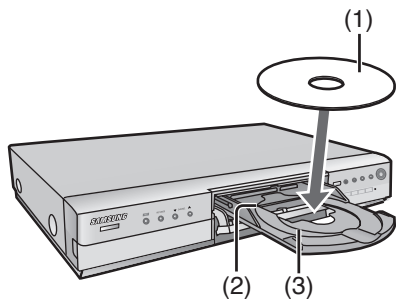


To pause play

Press [] **8**.

Press again to restart playing.

With non-cartridge discs



- (1) Insert label-up. (With double-sided discs, load so the label for the side you want to play is facing up.)
- (2) Guide for 12 cm (5") disc
- (3) Guide for 8 cm (3") disc

When a menu screen appears on the television

DVD-V VCD

Operate menus with the following operations. Actual operations depend on the disc.

- Press the numeric buttons **4** to select an item, or move [, , ,] **10** to select an item and press [ENTER] **10**.
- You can return to menus after you start play by pressing [TOP MENU] **9** or [MENU] **22** (DVD-Video), or [RETURN] **23** (Video CD).

Note

- The disc continues to rotate while the menu is displayed even after you finish playing an item. Press [] **7** when you finish to preserve the unit's motor and your television screen.
- Volume may be lower when playing DVD-Video than when playing other discs or during television broadcasts. If you turn the volume up on the television or amplifier, ensure you reduce the volume again before playing other sources or returning to the television so that a sudden increase in output does not occur.

For your reference

If "⊘" appears on the television

The operation is prohibited by the unit or disc.

- If a disc is loaded, the unit will come on and play will start when you press [] **21**.
- If you play a disc that includes parts without video, the unit may display the video from the disc you were playing immediately before that disc.

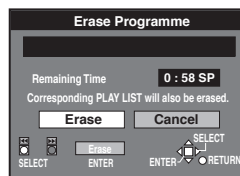
RAM DVD-R

Play starts from the beginning of the most recent recording. If that programme is extremely short, play starts from the next most recent recording. Use "TOP PLAY" in the FUNCTIONS window (page 30) to start play from the oldest programme on the disc (programme 1).

Erasing a programme that is being played

RAM DVD-R

- 1 During play
Press [ERASE] **30**.



- The menu disappears about 10 seconds later.
- 2 Use [] **10** or [, ,] **45** to select "Erase" and press [ENTER] **10** or [ERASE] **30**.
 - A confirmation message will be displayed.
 - Use [] **10** or [, ,] **45** to select "Cancel" and press [ENTER] **10** or [ERASE] **30**, or press [RETURN] **23** to cancel.

Note

- It is not possible to erase a programme when you are carrying out simultaneous recording and play (page 29).
- It is not possible to erase a programme that is in the process of being recorded.
- The available recording time on DVD-R does not increase when you erase programmes.

Starting play from where you stopped it (Resume Function)

RAM DVD-R DVD-V CD VCD MP3

- 1 During play
Press [■] 7.
• The unit remembers the position.
- 2 Press [▶] 21.
• Play starts from where you stopped it.



To cancel the resume function

Press [■] 7 while the unit remembers the position.
(The position is also cleared when you turn the unit off.)

To start play from a memorized position after turning the unit off

Press [POSITION MEMORY] 36 during play.
(The message "Position Memorized" appears on the television.)
Now when you press [▶] 21 after switching the unit to standby and back on, play starts from the memorized position.

For your reference

DVD-R DVD-V CD VCD MP3

- The position memorized when you press [■] 7 or [POSITION MEMORY] 36 is cleared when you open the disc tray.

RAM

- The position memory is written to the disc and remains intact until you mark a different position.
You cannot mark positions if the disc is write-protected with DISC INFORMATION (page 38) or with the write protect tab (page 72). Release the protection before marking position.
- If you press [■] 7 before switching the unit to standby after pressing [POSITION MEMORY] 36 to memorize a position, play will resume from the position you pressed [■] 7 when you press [▶] 21.

Fast forward and rewind—SEARCH

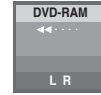
RAM DVD-R DVD-V CD VCD MP3

During play

Press [◀◀, SLOW/SEARCH] or [▶▶, SLOW/SEARCH] 20.

[◀◀]: backward

[▶▶]: forward



- If using the [◀◀/▶▶] or [▶▶/▶▶] 45 button on the unit, keep pressing the button for 1 or more seconds.
- There are 5 search speeds. Each press increases the search speed.
- The search speed is maintained when you release the button.
- Press [▶] 21 to return to normal play.
- You will hear sound at speed one (only forward) when playing DVD-RAM, DVD-R, DVD-Video and Video CDs. You can turn this sound off if you want to (page 60, "Sound"—"Audio during Search").
- Sound is not heard during chasing play and simultaneous recording and play.

Slow-motion play

RAM DVD-R DVD-V VCD

While paused

Press [◀◀, SLOW/SEARCH] or [▶▶, SLOW/SEARCH] 20.

[◀◀]: backward (does not work with Video CDs)

[▶▶]: forward

- If using the [◀◀/▶▶] or [▶▶/▶▶] 45 button on the unit, keep pressing the button for 1 or more seconds.
- There are 5 slow-motion speeds. Each press increases the slow-motion speed.
- The slow-motion speed is maintained when you release the button.
- Press [▶] 21 to return to normal play.

Frame-by-frame viewing

RAM DVD-R DVD-V VCD

Remote control only

While paused

Press [◀◀, FRAME] or [▶▶, FRAME] 32 or [◀, ▶] 10.

[◀◀] or [◀]: backward (does not work with Video CDs)

[▶▶] or [▶]: forward

- Each press shows the next or previous frame.
- Press [▶] 21 to return to normal play.

Skipping

RAM DVD-R DVD-V CD VCD MP3

You can skip to the beginning of tracks (page 70) and chapters (page 70) and restart play from there.

On DVD-RAM and DVD-R, you can skip to the start of a programme and start play from there.

The section between the point where recording is started and the point where it is stopped is called a "programme".

During play or while paused

Press [**◀◀**, SKIP] or [**▶▶**, SKIP] **6**.

[**◀◀**]: backward

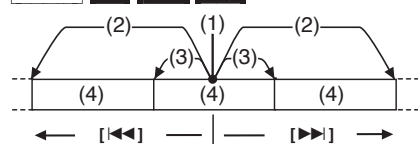
[**▶▶**]: forward

Each press increases the number of skips.

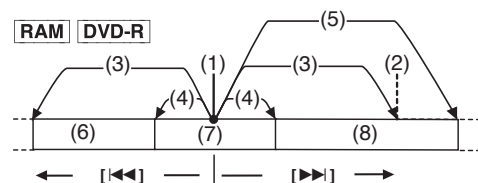
For your reference

- After skipping, the unit returns to the previous state, play or pause.
- Press [**▶**] **21** to restart play if it was paused.
- Pressing [**◀◀**] or [**▶▶**] **6** while a DVD menu is being shown or while the playback control feature on Video CDs (page 70) is working may take you to a menu screen.
- You can also mark positions to skip to (page 24).

DVD-V CD VCD MP3



- (1) Play position
(2) Twice
(3) Once
(4) Chapter/track



- (1) Play position
(2) Marker
(3) Twice
(4) Once
(5) Three times
(6) The programme before
(7) Current programme
(8) The programme after

Starting play from a selected programme, title, chapter or track

RAM DVD-R DVD-V CD VCD MP3

Remote control only

Preparation

Switch [DVD, TV] **15** to "DVD".

During play

Press the numeric buttons **4** to select the item.
(page 4)

- This works only when stopped with some discs (the screen saver is on the television).



Manual Skip

RAM DVD-R

Remote control only

You can skip commercials easily with this feature.

Preparation

Switch [DVD, TV] **15** to "DVD".

During play

Press [**MANUAL SKIP**] **24**.

Play restarts from approximately 30 seconds later.

Selecting an amount of time to skip—Time Slip

RAM DVD-R

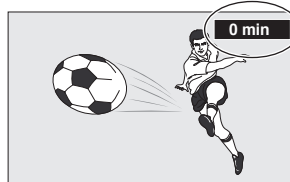
You can set an amount of time and then skip with one press of a button.

Preparation

Switch [DVD, TV] **15** to "DVD".

1 During play

Press [**TIME SLIP**] **25**.



2 Within 5 seconds

Press [**▲**, **▼**] **10** to enter the time and press [**ENTER**] **10**.

- Play skips the time you entered.

- Press [**▲**] **10** to increase or [**▼**] **10** to decrease in one-minute units. Press and hold [**▲**] **10** to increase or [**▼**] **10** to decrease in 10-minute units.



Note

You cannot use this feature while a "DIRECT NAVIGATOR" (page 41) or "PLAY LIST" (page 45) screen is being displayed.

Changing audio

RAM DVD-V VCD

Remote control only

You can change the audio being received or played with the following procedure.

Preparation

Switch [DVD, TV] 15 to "DVD".

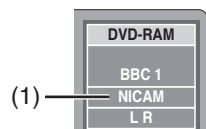
During reception or play

Press [AUDIO] 31 to select the audio type.

How the type changes depends on when you press the button.

While receiving a TV programme with NICAM

Automatic indication of the type of sound system which the programme being watched (NICAM/MONO) is broadcast.



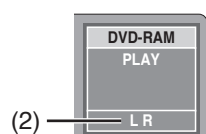
(1) e.g.: "NICAM" is selected

- If "NICAM OFF" is selected during manual tuning, "MONO" is always displayed.

While playing a television programme recorded on DVD-RAM

If it is a recording of a stereo broadcast

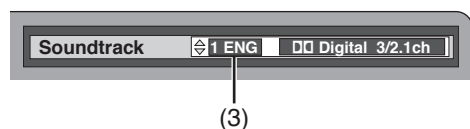
LR→L→R



(2) e.g.: "LR" is selected

While playing a DVD Video

You can change the audio channel number each time you press the button. This allows you to change things like the soundtrack language.

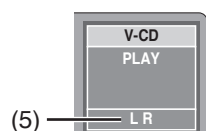


(3) e.g.: English is the selected language

(4) The language is switched to French

While playing a Video CD

LR→L→R



(5) e.g.: "LR" is selected

For your reference

- You can also use the DISPLAY menu to change the audio type.
- You can change the audio for the images being played with simultaneous recording and play and Time Slip.

When you have connected the unit to other equipment with an optical digital cable

You cannot change the audio type when you have used only an optical digital cable for connection in the following cases:

- While playing stereo or bilingual broadcasts recorded on DVD-RAM.
- While playing something recorded from other equipment.

When using DVD-R

You cannot use [AUDIO] 31 or the DISPLAY menu to change audio type when a DVD-R is in the disc tray.

While receiving a bilingual TV broadcast

You can use the SETUP menus to select which audio type is recorded, either "M1" or "M2". "M1" is the default setting. (page 60, "Sound"—"Bilingual Audio Selection")

During play

The audio type selected for recording is played. This is displayed as "LR".

Marking places to play again—MARKER

RAM DVD-R

You can mark up to 999 points on a disc to return to later. These marks are recorded directly onto DVD-RAM, but are cleared when you removed or finalized DVD-R.

DVD-V CD VCD MP3

You can mark up to 5 points on a disc to return to later. All the markers are cleared when the disc tray is opened.

Preparation

Switch [DVD, TV] **15** to "DVD".

■ Marking positions directly

During play

Press [MARKER] **35**.

- One marker is added.

■ Using DISPLAY menus to mark positions

Displaying the marker icon

1 During play

Press [DISPLAY] **34**.



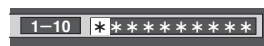
2 Use [▲, ▼] **10** to select the Play tab and press [▶] **10**.



3 Use [▲, ▼] **10** to select "Marker" and press [▶] **10** to highlight the first asterisk (*).

RAM DVD-R

DVD-V CD VCD MP3



Marking positions

1 Use [◀, ▶] **10** to select an asterisk (*).

2 Press [ENTER] **10**.

- One marker is added.

When marking positions 11 and above

RAM DVD-R

1 Use [◀, ▶] **10** to highlight "1-10".

2 Use [▲, ▼] **10** to select "11-20".

- You can select the next group of 10 when the current group is full.

3 Use [▶] **10**.

- The first asterisk is highlighted.

4 Press [ENTER] **10** to mark a position.

To play from a marked position

1 Use [◀, ▶] **10** to select a marker number.

2 Press [ENTER] **10**.

- Play starts from the marked position.

■ To clear a marker

Use [◀, ▶] **10** to select a marker number and press [CANCEL] **5**.

- An asterisk replaces the number and the position is cleared.

■ To clear the DISPLAY menus

Press [DISPLAY] **34**.

Note

RAM

- This feature doesn't work while using a play list.
- Markers cannot be added to or removed from discs that are protected (pages 38, 72).

RAM DVD-R

- The markers are ordered by time. This means that the marker numbers can change when you add and erase markers.

DVD-V CD VCD MP3

- This feature only works if the elapsed playing time of the disc is shown on the unit's display.
- Some subtitles recorded around the marker may fail to appear.

Using menus to play MP3 discs

MP3

This unit can play MP3 files recorded on CD-R/RW with a computer. Files are treated as tracks and folders are treated as groups.

"Total" means total number of all MP3 files (all tracks in all groups) recorded in the disc.

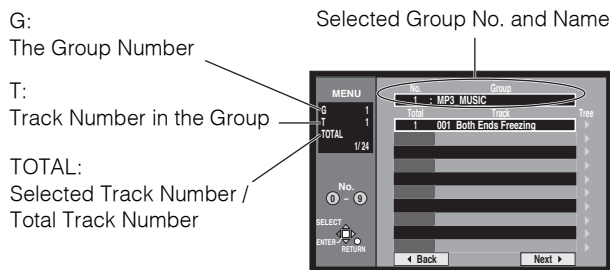
Preparation

Switch [DVD, TV] **15** to "DVD".

1 During stop or play

Press [TOP MENU] **9** or [MENU] **22**.

- The file list appears.



2 Press [▲, ▼] **10** to select the track and press [ENTER] **10**.

Play continues to the last track in the last group.

- "—" indicates the track currently playing.
- You can also select the track with the numeric buttons **4**, directly.

e.g.: The track "006.mp3" of Group "002" of the illustration on top right,
"6": [0] → [0] → [6]

The track "010.mp3" of Group "003" of the illustration on top right,
"10": [0] → [1] → [0]

To show other pages

Press [▲, ▼, ◀, ▶] **10** to select "◀ Back" or "Next ▶" and press [ENTER] **10**.

- After listing all the tracks in one group, the list for the next group appears.

To exit the file list

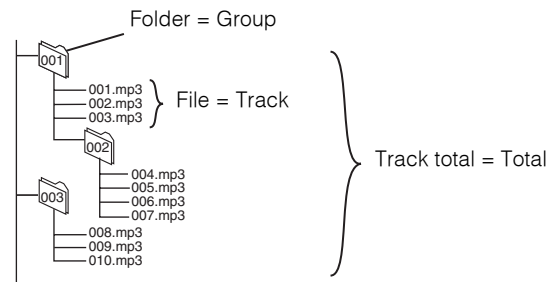
Press [TOP MENU] **9**, [MENU] **22** or [RETURN] **23**.

Note

- The order in which menu appears on menu display may differ from the order on computer display.
- Sometimes, during fast forward/rewind of VBR recorded MP3, the counter may not display correctly.
- This unit is compatible with multi-session but if there are a lot of sessions it takes more time for play to start. Keep the number of sessions to a minimum to avoid this.
- If you play a MP3 track that includes still picture data, it will take some time before the music itself starts playing and the elapsed time will not be displayed during this time. Even after the track starts, the correct play time will not be displayed.
- Maximum number of tracks and groups recognizable: 999 tracks and 99 groups
- Compatible compression rate: between 32 kbps and 320 kbps

Naming folders and files

At the time of recording, give folder and file names a 3-digit numeric prefix in the order you want them to play (this may not work at times).



- Discs must conform to ISO9660 level 1 or 2 and Joliet (except for extended formats).
- MP3 files must have the extension ".MP3" or ".mp3".
- This unit is not compatible with ID3 tags.
- English alphabets and Arabic numerals are indicated properly. Other characters may not be indicated properly.

Using the tree screen to find a group

1 During stop or play

Press [▶] **10** while a track is highlighted to display the tree screen.



Selected Group Number/Total Group Number

- If the group has no track, "—" is displayed as group number.

- The folder which the file of MP3 is not in through is indicated by black. Even if that folder is chosen, a file list doesn't come out.

2 Press [▲, ▼] **10** to select a group and press [ENTER] **10**.

- The file list for the group appears.

For your reference

- Press [◀, ▶] **10** to jump layers in the tree screen.

To return to the file list

Press [RETURN] **23**.

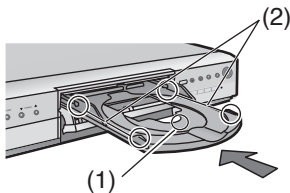
Recording television programmes

RAM DVD-R

Preparation

Switch [DVD, TV] **15** to "DVD".

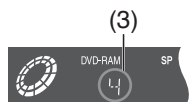
- 1 Press [DVD,] **1** to turn the unit on.
- 2 Press [, OPEN/CLOSE] **39** to open the tray and insert a disc.
 - Insert one disc only within the tray's guides.
 - Use a disc that can be recorded on and that has enough space available.
 - Press [, OPEN/CLOSE] **39** to close the tray.
 - When using a DVD-RAM for the first time with this unit, format it to ensure accurate recording (page 39, "Format"). Check the disc carefully to ensure it doesn't contain programmes you want to keep.



- (1) Arrow pointing inwards.
(2) Align correctly.

• Insert label-up with the arrow facing in. (with double-sided discs, load so the label for the side you want to record is facing up.)

- 3 Press [, v, CH] **18** to select the channel.



(3) e.g.: When you have selected channel 4

- 4 Press [REC MODE] **26** to select the recording mode.

- Select "XP", "SP", "LP" or "EP".
- It is also possible to perform the flexible recording (FR). (page 27)



(4) e.g.: When you have selected "XP"

- 5 Press [, REC] **16** to start recording.

- The programme is recorded into the available space on the disc.



To pause recording

Press [, **8**].

Press again to restart recording.

To stop recording

Press [, **7**].

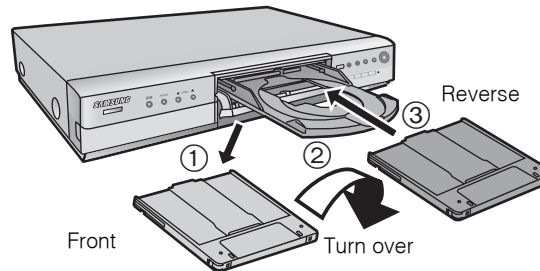
To select channels with the remote control

Press the numeric buttons **4**.

Convenient features

- Chasing play—playing from the beginning of the programme you are recording (page 29).
- Simultaneous recording and play—watching a programme you recorded while recording another (page 29).
- Time Slip—checking the images you are recording (page 30).

Re-inserting double-sided discs



You can get up to 12 hours recording when you use double-sided discs and use the "EP" mode.

Recording modes and approximate recording times in hours

	DVD-RAM		DVD-R (4.7 GB)
	Single-sided (4.7 GB)	Double-sided (9.4 GB)	
XP (High quality)	1	2	1
SP (Normal)	2	4	2
LP (Long play)	4	8	4
EP (Extra long play)	6	12	6

- Flexible recording (FR) calculates a recording rate that will enable the recording to fit in the remaining time on the disc.

To check the remaining time and the current mode during recording

Press [STATUS] **28** several times.



- (1) Available recording time and recording mode (e.g.: "0:50 XP" indicates 50 minutes in XP mode)

Note

- The message "Cannot record. Maximum amount of scenes exceeded" is displayed if you try to start recording when there are already 99 programmes on a disc. Erase unneeded programmes (DVD-RAM/DVD-R) or use a new disc to continue recording.
- Check that disc can be recorded on (page 10).
- Ensure the write protect tab is not set to "PROTECT" (page 72).
- Ensure the disc is not write-protected with DISC INFORMATION (page 38).

For your reference

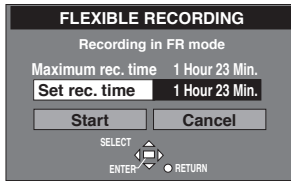
- You can record up to 99 programmes on one disc.
- You cannot change the channel or recording mode during recording. You can change them while recording is paused, but the material is recorded as a separate programme.
- An error message appears if you try to start recording when a disc is full; the remaining time will be shown as "0:00". To continue recording, erase unneeded programmes (DVD-RAM only (page 42), Erasing programmes) or use another disc.
- There are limitations when recording to DVD-R (page 11).
- The message "Can not record on the disc." is displayed when recording was not completed correctly. Check the discs for dirt or scratches.
- Recording cannot be performed correctly if you try to record PAL system to a disc that already contains recordings using NTSC.
- In RGB recording, set "AV2 Input" to "RGB (PAL only)". (page 61)

Flexible recording mode (FR)

The unit calculates a recording rate that enables the recording to fit in the time you set (within the remaining time on the disc) and with the best possible picture quality.

1 While stopped

Press [F Rec] **27**.



2 Press [▲, ▼, ◀, ▶] **10** to set the recording time.

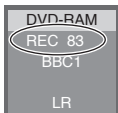
3 To start recording

Press [▲, ▼, ◀, ▶] **10** to select "Start" and press [ENTER] **10**.

- Recording starts.

For your reference

- Press [STATUS] **28** during recording to show the remaining time.



- It is not possible to change channel or recording mode while flexible recording is paused.
- Recording time reduces if you repeatedly pause recording.

One Touch Recording—Specify a time to stop recording

RAM DVD-R

Main unit only

This is a simple way of making timer recordings when you are in a hurry or before you go to bed. You can set the time up to 4 hours in advance.

While recording

Press [●, REC] **16** on the main unit to select the recording time.

The time increases as illustrated each time you press the button. The counter decreases in 1-minute units after you set a time. You can change the time again with the same operation. When the time you set is reached, recording stops and the unit switches to standby.

Unit's Display

(Counter) → 30 → 60 → 90
 ↑ 240 ← 180 ← 120 ←



(2) Shows recording will stop in 30 minutes

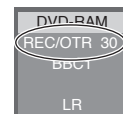
To cancel

During recording, press [●, REC] **16** until the counter appears.

- Recording continues.

To show the time remaining until recording finishes

Press [STATUS] **28** several times.



For your reference

- This does not work during timer recordings or while using flexible recording.
- You cannot use the remote control to specify a time for recording to stop.
- Recording stops and the set time is cleared if you press [■] **7**.
- The set time is cleared if you change the recording mode or channel while recording is paused.

■ To immediately record the same TV programme that you are viewing on the TV (Direct TV Recording)

This function allows you to immediately start recording the same programme that you are viewing on the TV.

The programme position selected on the unit automatically changes to that of the TV programme that you are viewing on the TV. When you stop the recording, the unit automatically switches back to the previously selected programme position.

Conditions for correct operation of the Direct TV Recording function:

- Your TV must be equipped with the [Q Link] function.
- The unit must be connected to the TV via a fully-wired 21-pin Scart cable.

To perform Direct TV Recording:

1 Press [▲, OPEN/CLOSE] (39) to open the tray and insert a disc.

2 Press [DIRECT TV REC] (17).

- Recording of the TV programme that you are viewing on the TV starts.
- In some cases, it may not be possible to change the programme position on the TV during Direct TV Recording.

3 Press [■] (7) to stop recording.

■ Linked timer recordings with external equipment (EXT LINK)

RAM DVD-R

If an external equipment (for example a satellite receiver) with a timer function is connected to the AV2 socket of this unit by a 21-pin cable, it is possible to control the recording of the unit from this equipment. For the connection to the external equipment, see page 56.

Preparation

- Make sure that "AV2 Connection" is set to "Ext Link 1" or "Ext Link 2". (page 61)
- Timer programming has to be done on the external equipment and switch to the timer recording standby mode. Refer to the equipment's operating instructions.

1) Press [EXT LINK] (40) on the unit to switch the unit over to the timer recording standby mode.

- As long as a video picture is being transmitted by the Satellite or Digital Receiver, the unit will record it.

The notice is displayed on the TV screen.

(Only when [Ext Link 2] is selected)

To delete it, press [ENTER] (10).



2) To cancel the external control, turn off the timer recording standby mode of the unit by pressing [EXT LINK] (40) again.

For your reference

- To switch TV automatically to the picture from the unit in playback mode, connect the AV1 socket of this unit to the TV by a 21-pin cable.
- This function does not work with some equipment. Refer to the equipment's operating instructions.
- The beginnings of recordings may not be recorded correctly in some cases.
- When "AV2 Connection" is set to "Ext Link 2", this function does not work if the input signal is NTSC system.
- The play picture or menu picture is not output from AV2 socket during Linked timer recording standby mode.
- Some televisions have separate terminals for RGB input and Q Link and this means you cannot view RGB signals and use Direct TV Recording at the same time. Refer to your television's operating instructions and select the type best suited to your needs.

Playing from the beginning of the programme you are recording—Chasing play

RAM

You can start play from the beginning of a programme while continuing to record it.

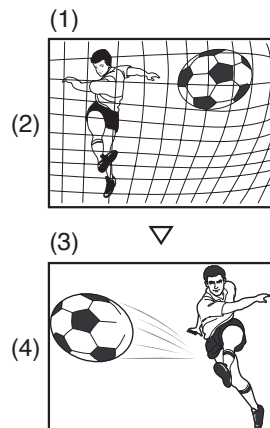
Preparation

Switch [DVD, TV] **15** to "DVD".

While recording or timer recording

Press **[▶] 21**.

Play starts from the beginning of the programme being recorded.



- (1) For example: while recording programme 2 (sport)
- (2) You want to watch the **sports programme** currently recording (programme 2)
- (3) Do the above operation (press **[▶] 21**) and...
- (4) The same **sports programme** is recorded while you are watching it.

■ To stop play and recording

- 1) Press **[■] 7**. Play stops.
- 2) (Wait 2 or more seconds)
Press **[■] 7**. Recording stops.
 - You cannot stop recording with **[■] 7** during timer recording. To stop timer recording, press **[⏻, TIMER] 12**.

For your reference

- The playback images are displayed during chasing play.
- Sound is not output while fast-forwarding.
- Play cannot be started until at least 2 seconds after recording starts.
- If you fast-forward and get to within a few seconds of the part being recorded, the picture will change to show the images currently being played.
- The operation is shown on the unit's display (page 5).
- If you fast-forward and get to within a few seconds of the part being recorded, the unit automatically switches to play and shows the images about 5 seconds before. You cannot get any closer than this.
- While this function is activated, TIME SLIP **44** indicator lights up.

Simultaneous recording and play

RAM

You can start play of the programme you are recording or play a programme previously recorded.

Preparation

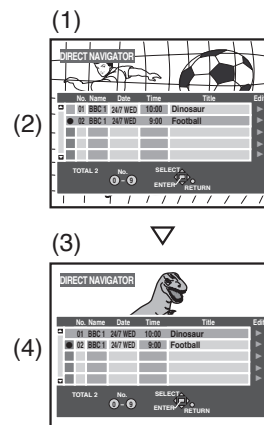
Switch [DVD, TV] **15** to "DVD".

During recording or timer recording

1 Press **[DIRECT NAVIGATOR] 9**.

- "●" is displayed in the direct navigator to indicate the programme is being recorded (page 41).

2 Use **[▲, ▼] 10** to select a programme and press **[ENTER] 10**.



- (1) For example: while recording programme 2 (sport)
- (2) You want to watch the **movie** you recorded yesterday (programme 1)
- (3) Do the above operation and...
- (4) A **sports programme** is recorded while you watch a **movie**.

■ To stop play and recording

- 1) Press **[■] 7**. Play stops.
- 2) (Wait 2 or more seconds)
Press **[■] 7**. Recording stops.
 - You cannot stop recording with **[■] 7** during timer recording. To stop timer recording, press **[⏻, TIMER] 12**.

For your reference

- During simultaneous recording and play, you cannot edit with the direct navigator or play lists.
- If you start play while the unit is on standby for timer recording, recording starts when the time you set is reached.
- The unit returns to recording standby when you stop play while it is on standby for timer recording.
- The operation is shown on the unit's display (page 5).
- Sound is not output while fast-forwarding.
- While this function is activated, TIME SLIP **44** indicator lights up.

Checking the recording during recording (TIME SLIP)

RAM

You can play the programme being recorded to check that it is being recorded correctly. You can also check parts that were recorded previously.

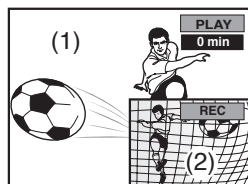
Preparation

Switch [DVD, TV] **15** to "DVD".

While recording or timer recording

Press [TIME SLIP] **25**.

Play starts 30 seconds previous.

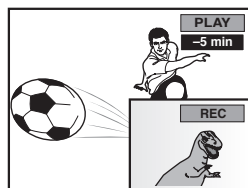


- (1) Play images (30 seconds before)
(2) Current recording

To change the part being played

Press [▲, ▼] **10** to enter the time.

- Press [▲] **10** to increase or [▼] **10** to decrease in one-minute units. Press and hold [▲] **10** to increase or [▼] **10** to decrease in 10-minute units.



To show the play images in full

Press [TIME SLIP] **25**.

- Press [TIME SLIP] **25** to return to the picture-in-picture screen.

To stop play and recording

- Press [■] **7**. Play stops.
- (Wait 2 or more seconds)
Press [■] **7**. Recording stops.
 - You cannot stop recording with [■] **7** during timer recording. To stop timer recording, press [⊖, TIMER] **12**.

For your reference

- The sound for the images being played is heard during Time Slip.
- While this function is activated, TIME SLIP **44** indicator lights up.
- The image on the small screen may be distorted or flicker depending on the scene. However, this does not affect the image recorded.

Watching the television while recording

Preparation

Switch [DVD, TV] **15** to "TV".

1 Press [AV] **3** to change the input mode to "TV".

2 Press [▲, ▼, CH] **18** to change channels.

- You can also select the channel with the numeric buttons **4**.

For your reference

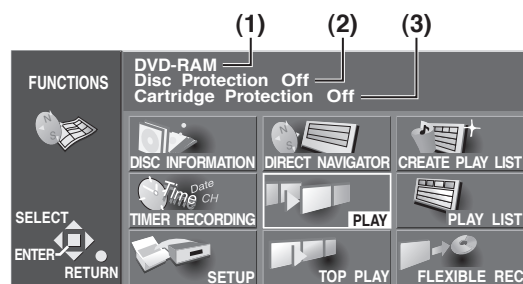
- You can also do this if the unit is making a timer recording.
- The recording is unaffected.

Using the FUNCTIONS window

About the FUNCTIONS window

Most of the features and functions of this unit can also be controlled with icons. The examples show the FUNCTIONS window when a DVD-RAM is being used. Actual menus depend on the type of disc being used.

Disc display



(1) Disc title

- The disc's title is displayed if one is recorded. You can enter titles with Enter Title in DISC INFORMATION (page 37).

(2) Disc protection

- "On" is displayed if you have used Disc Protection in DISC INFORMATION to protect the disc (page 38).

(3) Cartridge Protection

- "On" is displayed if the cartridge's write protect tab is switched to "PROTECT" (page 72).

Using the FUNCTIONS window

RAM DVD-R DVD-V CD VCD MP3

Preparation

Switch [DVD, TV] **15** to "DVD".

1 While stopped

Press [FUNCTIONS] **11** to show the FUNCTIONS window.



2 Use [▲, ▼, ◀, ▶] **10** to select an item.

- Refer to the relevant pages for details.

3 Press [ENTER] **10**.

- Your selection is entered and the FUNCTIONS window disappears. If the operation requires further selections, another screen appears.

To clear the FUNCTIONS window

Press [FUNCTIONS] **11** or [RETURN] **23**.

FUNCTIONS window icons**DISC INFORMATION**

Enter Title: **RAM** **DVD-R** (page 37)
 Disc Protection: **RAM** (page 38)
 Erase all programmes: **RAM** (page 39)
 Format: **RAM** (page 39)
 Finalize: **DVD-R** (page 40)

TIMER RECORDING

Checking the timer programming: **RAM** **DVD-R** (page 35)
 Registering programmes and making corrections: **RAM** **DVD-R** (page 34)
 Canceling timer recordings: **RAM** **DVD-R** (page 35)

SETUP

Settings for the unit and discs: **RAM** **DVD-R** **DVD-V** **CD** **VCD**
MP3 Settings depend on the type of disc (page 59)

DIRECT NAVIGATOR

Play: **RAM** **DVD-R** (page 41)
 Erase: **RAM** **DVD-R** (page 42)
 Enter Title: **RAM** **DVD-R** (page 42)
 Properties: **RAM** **DVD-R** (page 42)
 Protection: **RAM** (page 43)
 Partial Erase: **RAM** (page 44)
 Divide: **RAM** (page 44)

PLAY

Disc play: **RAM** **DVD-R** **DVD-V** **CD** **VCD**
MP3 (page 20)

RESUME PLAY

Start play from the point you stopped play: **RAM** **DVD-R** **DVD-V** **CD** **VCD**
MP3 (page 21)

TOP PLAY

Start play from the oldest programme on the disc: **RAM** **DVD-R** **DVD-V** **CD** **VCD**
MP3 (page 20)

CREATE PLAY LIST

Creating play lists: **RAM** (page 46)

PLAY LIST

Playing Play Lists: **RAM** (page 47)
 Play Scenes: **RAM** (page 47)
 Edit: **RAM** (pages 48, 49)
 PL Copy: **RAM** (page 50)
 PL Erase: **RAM** (page 50)
 Enter Title: **RAM** (page 50)
 Properties: **RAM** (page 50)

FLEXIBLE REC

Flexible recording mode: **RAM** **DVD-R** (page 27)

TOP MENU MENU

Example
 Display a disc's menus: **DVD-V** (page 20)

Some items will not be shown unless you release disc protection with DISC INFORMATION — "Disc Protection" (page 38) or release cartridge protection with the write protect tab (page 72).

Timer recording

Using VIDEO Plus+ number to make timer recording

VIDEO Plus+ are different trademarks used to represent the same easy recording feature. However, for simplicity, only the term VIDEO Plus+ will be used.

RAM DVD-R

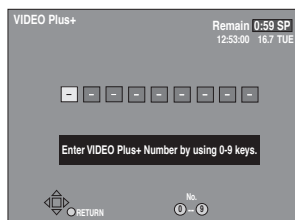
Remote control only

You can easily programme the unit to make a timer recording of a programme by entering the programme's VIDEO Plus+ number, which can be found in the television sections of newspapers or in television guides. You can programme up to 16 programmes one month in advance. Programmes for everyday or every week are counted as one programme.

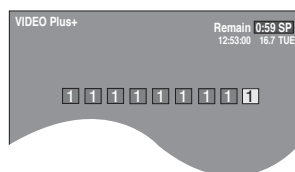
Preparation

- Switch [DVD, TV] **15** to "DVD".
- Ensure that this unit's clock is set correctly.
- Insert a disc for recording (make sure there is enough room for the programme you are going to record plus a little extra).

1 Press [VIDEO Plus+] **2** button.



2 Press the numeric buttons **4** to enter the VIDEO Plus+ number.



- If you enter the wrong digit, use [**10**] to move back and enter the correct digit.

3 Press [ENTER] **10**.

- The Timer Programme Correction screen which allows you to confirm the programme appears and make corrections if necessary.



• Check the programme.

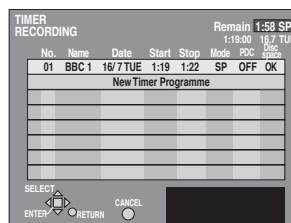
To make corrections (page 33).

To programme other recordings, repeat steps 1, 2, and 3.

4 If the programme is correct

Press [ENTER] **10**.

- The Timer Programme List screen appears.



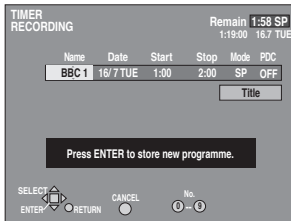
5 Press [RETURN] **23**.

■ To put the unit on recording standby

Press [⊖, TIMER] **12**.

Ensure "⊖" lights on the unit's display.

■ To change the programme



Timer Programme Correction screen (from step 3 on page 32)

- 1) Use [**◀**, **▶**] **10** to select the item you want to change.
- 2) Change the setting with [**▲**, **▼**] **10**.
 - You may use the numeric buttons **4** to enter "Name", "Date", "Start" and "Stop".

The items change as follows:

 - **Name** (Programme Position/TV Station Name)
 - **Date**
Current date→the day before one month later→Daily (Sunday to Saturday)→Daily (Monday to Saturday)→Daily (Monday to Friday)→Weekly (Sundays)→...→Weekly (Saturdays)
 - **Start (start time)/Stop (finish time)**
The time increases or decreases in 30-minute increments if you hold the button.
 - **Mode (Recording mode)**
XP→SP→LP→EP→FR (page 26)
 - **PDC**
ON→OFF(---)
 "---": The PDC signals cannot be detected in Auto Setup, because the station does not transmit the PDC signals.
 "OFF": The station's PDC signals is detected in Auto Setup.
 - If "---" indicated, the station may not temporarily transmit the PDC signals. It is recommended to attempt to carry out Auto Setup again (in several hours, in several days, etc.). (page 65)
 If "---" still appears after several attempts, the station possibly does not transmit the PDC signals.
 - **Title**
Select "Title" and press [ENTER] **10**, then refer to page 37 for entering title.
- 3) Press [ENTER] **10** when you have finished making changes. The Timer Programme List screen appears.

■ Setting for control of the recording starting and ending time by special signal Included in the broadcasting signal (PDC Function)

PDC stands for Programme Delivery Control.

If a TV programme, for example a football game runs longer than scheduled, is shortened or starts earlier or later, this function synchronizes the recording start and stop with the actual broadcasting start and stop of the TV programme.

Conditions for correct operation of the PDC function:

- "ON" must be displayed under [PDC] on the screen.
- The TV station must broadcast PDC signals.
- The programme starting time must be set correctly to the starting time listed in the newspaper/magazine.

To activate the PDC Function:

Use [**▲**, **▼**] **10** to make the "ON" indication appear.

■ If "—" appears under "Name" after entering a VIDEO Plus+ number

Name stands for Programme Position/TV Station Name.

Normally, the name of the TV station or the number of the programme position is displayed under "Name".

However, if the TV station information was not automatically set during Preset Download or Auto Setup due to adverse reception conditions, the "—" indication appears instead.

In such a case, follow the operation steps below to correct it.

Use [**▲**, **▼**] **10** repeatedly to select the programme position on which the TV programme to be recorded will be broadcast.

After you have entered the information of a TV station, it remains stored in the unit's memory, and you do not need to enter it again in the future.

Note

- The built-in clock employs 24-hour system.
- The actual time recorded may be longer than the programme itself when television programmes are recorded using VIDEO Plus+.
- "Invalid Entry" is displayed when you enter the wrong code. Reenter the code.
- "PROG FULL" is displayed in the unit's display if there are already 16 items programmed. Delete unnecessary items (page 35).
- The remaining time displayed is calculated based on the current recording mode.
- When recording more than one programme in a row, for DVD-RAM the first few seconds, and for DVD-R about the first 30 seconds of all programmes from the second one onwards will not be recorded.
- Recording is not possible unless you set "Disc Protection" in "DISC INFORMATION" to "Off". (page 38)
- You can not record to a disc if the write protect tab on a cartridge disc is set to protect. Release this before operation (page 72).
- Even if the unit is put in the timer recording standby mode or the timer recording is being performed, you can play a programme.
- If the unit is not put in the timer recording standby mode at the latest 10 minutes before the programmed timer recording starting time, the [**⊖**] flashes on the unit display. In this case, press the [**⊖**, TIMER] **12** button to put the unit in the timer recording standby mode.

Manual programming

RAM DVD-R

Remote control only

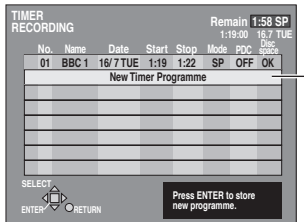
You can set your own programming conditions (up to 16 programmes).

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Ensure that this unit's clock is set correctly.
- Insert a disc for recording (make sure there is enough room for the programme you are going to record plus a little extra).

1 Press [PROG/CHECK] **13**.

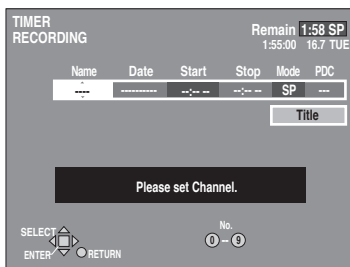
- The Timer Programme List screen appears.



A line that is ready for programming is highlighted.

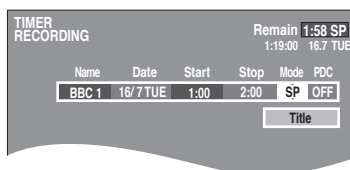
2 Press [ENTER] **10**.

- The Timer Programme Correction screen appears.



3 Use [▶] **10** to move through the items and change the items with [▲, ▼] **10**.

- The current settings are shown each time you press [▶] **10**.
- You may use the numeric buttons **4** to enter "Name", "Date", "Start" and "Stop".



- **Name** (Programme Position/TV Station Name)
- **Date**
Current date→the day before one month later→
Daily (Sunday to Saturday)→Daily (Monday to Saturday)→
Daily (Monday to Friday)→Weekly (Sundays)→...→
Weekly (Saturdays)
- **Start (start time)/Stop (finish time)**
The time increases or decreases in 30-minute increments if you hold the button.
- **Mode (Recording mode)**
XP→SP→LP→EP→FR (page 26)
- **PDC**
ON→OFF (---) (page 33)
- **Title**
Select "Title" and press [ENTER] **10**, then refer to page 37 for entering title.

4 Press [ENTER] **10** when you have finished making changes.

- To continue programming:
Repeat steps 2, 3, and 4.

5 Press [PROG/CHECK] **13** or [RETURN] **23**.

To put the unit on recording standby

Press [⏻, TIMER] **12**.

Ensure "⏻" lights on the unit's display.

To change the timer recording programme

- 1) While the Timer Programme List Screen is being shown, use [▲, ▼] **10** to select the programme you want to change, and press [ENTER] **10** to show the Timer Programme Correction screen.
 - You may also select programme by inputting a 2-digit number using the numeric buttons **4**.
 - Use [◀, ▶] **10** to move to the page preceding or following the one on display.
- 2) Move through the items with [▶] **10** and change the settings with [▲, ▼] **10** and press [ENTER] **10**.

Note

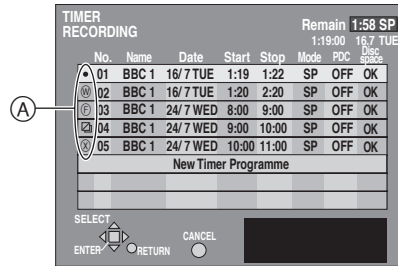
- The built-in clock employs 24-hour system.
- The remaining time is not shown if you insert discs other than DVD-RAM or DVD-R.
- The remaining time displayed is calculated based on the current recording mode.
- If the disc is protected (pages 38, 72), the unit switches to standby but does not go on standby for recording. Check the disc carefully.
- Recording is not possible unless you set "Disc Protection" in "DISC INFORMATION" to "Off" (page 38).
- You cannot record to a disc if the write protect tab on a cartridge disc is set to protect. Release this before operation (page 72).
- Even if the unit is put in the timer recording standby mode or the timer recording is being performed, you can play a programme.
- If the unit is not put in the timer recording standby mode at the latest 10 minutes before the programmed timer recording starting time, the [⏻] flashes on the unit display. In this case, press the [⏻, TIMER] **12** button to put the unit in the timer recording standby mode.
- When recording more than one programme in a row, for DVD-RAM the first few seconds, and for DVD-R about the first 30 seconds of all programmes from the second one onwards will not be recorded.

To check programmes

RAM DVD-R

Press [PROG/CHECK] **13**.

The Timer Programme List screen appears.



Icon explanations (A)

- This programme is currently recording.
- W The programme is overlap with another programme.
- F The disc was full or the maximum number of programmes or scenes was reached so the programme failed to record.
- The television programme was copy-guarded so the programme failed to record.
- X The programme failed to record for some other reason.

Disc space

- OK:** Displayed if the recording can fit in the remaining space on the disc. However, when the programme becomes longer than scheduled during the recording by setting "PDC" to "ON", the programme may not be recorded until its end.
- **(Date):** For recordings made daily or weekly, the display will show until when recordings can be made based on the time remaining on the disc.
- !:** Displayed if the disc is not inserted in the unit or is write-protected (pages 38, 72) or there is not enough memory capacity left on the disc.

To change the programme

(page 34)

To exit from the Timer Programme List screen

Press [PROG/CHECK] **13** or [RETURN] **23**. (The television is shown.)

For your reference

- Programmes that failed to record are deleted from the list at 4 a.m. the day after tomorrow.

Starting and canceling programmes

RAM DVD-R

To put the unit on recording standby

Press [⏻, TIMER] **12**.

The unit turns off and "⏻" lights on the unit's display.

Note

- The unit cannot go to timer recording standby if the disc is protected (pages 38, 72) or full ("⏻" flashes). Check the disc carefully.

To release the unit from recording standby

If you want to record something else before the programme start time, for example:

Press [⏻, TIMER] **12**.

The unit turns on and "⏻" goes out.

- Be sure to press [⏻, TIMER] **12** before the programme start time to put the unit on recording standby. The programme only works if "⏻" is on.

To stop recording while a programme is working

Press [⏻, TIMER] **12**.

To clear a timer recording programme

RAM DVD-R

Press [CANCEL] **5** or [ERASE] **30** while the programme's Timer Programme Correction screen is being shown.

(Alternatively, use [▲, ▼] **10** to select the programme in the Timer Programme List screen and press [CANCEL] **5** or [ERASE] **30**.)

- You can not delete programmes that are currently recording.

Recording from a video cassette player

When connected to the other equipment

RAM DVD-R

You can record audio and video being played on a video cassette player or a video camera connected to the input terminals.

Preparation

- Before connecting any cables, first make sure that the power for both units is off.
Then after connecting any cable, turn on the both units.
- Connect the other equipment to this unit's input terminals (page 57).
- Switch [DVD, TV] **15** to "DVD".
- Insert a disc that can be recorded on.
- Select the recording mode, XP, SP, LP or EP (page 26).
- It is also possible to perform the flexible recording (FR) (page 27).

1 While stopped

Press [**Δ**, **∇**, **CH**] **18** or [INPUT SELECT] **29** to select the input channel for the equipment you have connected.

- Select AV1, AV2, AV3 or AV4.

2 Start play on the other equipment.

3 Press [**●**, REC] **16** at the point you want to start recording.

■ To skip unwanted parts

Press [**II**] **8** to pause recording.

Press again to restart recording.

■ To stop recording

Press [**■**] **7**.

Note

- Stop play on the other equipment as well.

For your reference

- Poor video quality or colouring may indicate that the material you are recording has copy protection.
- If you connect an other equipment with RGB output capability to the AV2 socket on this unit, the output signal of the equipment must be set to RGB when you have set "AV2 Input" to "RGB (PAL only)".
- Select the TV system (PAL/NTSC) of the programme you wish to record (page 61).
- Any software that has been so treated cannot be recorded using this unit.

To select the TV system (PAL/NTSC)

You can select the TV system (PAL/NTSC) of the programme you wish to record (page 61).

Preparation

Switch [DVD, TV] **15** to "DVD".

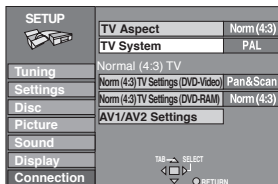
1 Press [FUNCTIONS] **11** to show the FUNCTIONS window.

2 Use [**Δ**, **∇**, **◀**, **▶**] **10** to select "SETUP" and press [ENTER] **10**.

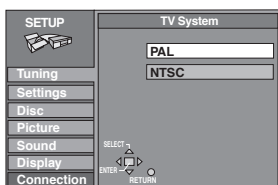


3 Use [**Δ**, **∇**] **10** to select the "Connection" and press [**◀**] or [**▶**] **10**.

4 Use [**Δ**, **∇**] **10** to select "TV System" and press [ENTER] **10**.



5 Use [**Δ**, **∇**] **10** to select the TV system and press [ENTER] **10**.



Entering titles

RAM DVD-R

You can:

- Title discs with the DISC INFORMATION in the FUNCTIONS window.
- Title programmes with the Timer recording (page 32).
- Title programmes with the DIRECT NAVIGATOR (page 42).
- Title play lists with the PLAY LIST screen (page 50).

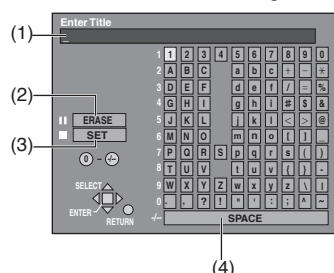
Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc with something recorded on it.
- Select Titling "DISC INFORMATION", Titling "Timer recording" Titling "DIRECT NAVIGATOR", or Titling "PLAY LIST" screen.

1 After the titling screen appears

Use [**▲**, **▼**, **◀**, **▶**] **10** to select the character you want to enter and press [ENTER] **10**.

- You can enter the following characters.



- (1) This window shows the text you have entered (Title field)
- (2) ERASE (**11** **8**)
- (3) SET (**11** **7**) (when you have finished entering text)
- (4) SPACE

To enter other characters

Repeat step 1.

2 Press [**■**] **7**. (You can also finish entering the title by using [**▲**, **▼**, **◀**, **▶**] **10** to select "SET" and pressing [ENTER] **10**.)

- The title is entered and the screen disappears.

■ Using the numeric buttons **4** to enter characters

e.g., entering the letter "R"

- 1) Press [**7**] **4** to move to the 7th row.
- 2) Press [**7**] **4** twice to highlight "R".
- 3) Press [ENTER] **10**.

- You may enter a space by pressing [**-/**] **4** and then [ENTER] **10**.



■ To correct a character

- 1) Use [**▲**, **▼**, **◀**, **▶**] **10** to select the character you want to correct in the title field.
- 2) Press [**■**] **8**. (You can also erase characters by using [**▲**, **▼**, **◀**, **▶**] **10** to select "ERASE" and pressing [ENTER] **10**.)
- 3) Use [**▲**, **▼**, **◀**, **▶**] **10** to select the correct character and press [ENTER] **10**.

Note

- You cannot enter titles if the programme is protected. Release the protection with the direct navigator (page 43).
- You cannot enter titles unless the "Disc Protection" in DISC INFORMATION is "Off" (page 38).
- You cannot enter titles if the disc is protected with the write protect tab (page 72).
- If you enter a long title, only part of it is shown in the programme list (page 41) and play list screen (page 45).

DISC INFORMATION

About DISC INFORMATION

RAM DVD-R

- You can give discs titles—Enter Title
- You can write-protect and write-enable DVD-RAM—Disc Protection
- You can erase all programmes and play lists on DVD-RAM—Erase all programmes
- You can format DVD-RAM—Format
- You can finalize DVD-R so they can be played on compatible DVD players—Finalize

Enter Title

RAM DVD-R

Each disc can be given a different title.

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you have recorded on.

1 While stopped

Press [FUNCTIONS] **11**.

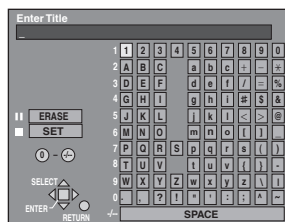
2 Use [**▲**, **▼**, **◀**, **▶**] **10** to select "DISC INFORMATION" and press [ENTER] **10**.



3 Use [**▲**, **▼**] **10** to select "Enter Title" and press [ENTER] **10**.



4 Enter the title.



Note

- You can give DVD-RAM titles of up to 64 characters and DVD-R titles of up to 40 characters.
- You cannot give DVD-R titles once they have been finalized.

Disc Protection

RAM

This allows you to protect discs from accidental erasure.

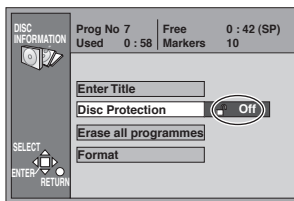
Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert the disc you want to protect.

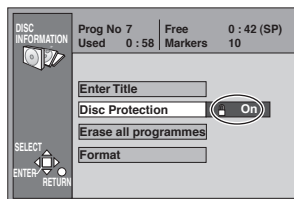
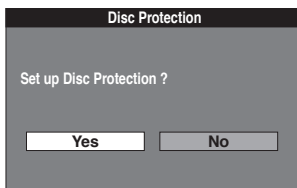
- 1 While stopped
Press [FUNCTIONS] **11**.
- 2 Use [▲, ▼, ◀, ▶] **10** to select "DISC INFORMATION" and press [ENTER] **10**.



- 3 Use [▲, ▼] **10** to select "Disc Protection" and press [ENTER] **10**.



- 4 Use [◀] **10** to select "Yes" and press [ENTER] **10**.



■ To stop partway through

Select "No" in step 4 and press [ENTER] **10**.

Or

Press [RETURN] **23**.

Releasing disc protection

RAM

This allows you to release disc protection.

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert the disc you want to release protection.

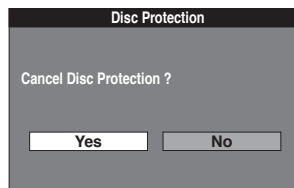
- 1 While stopped
Press [FUNCTIONS] **11**.
- 2 Use [▲, ▼, ◀, ▶] **10** to select "DISC INFORMATION" and press [ENTER] **10**.



- 3 Use [▲, ▼] **10** to select "Disc Protection" and press [ENTER] **10**.



- 4 Use [◀] **10** to select "Yes" and press [ENTER] **10**.



■ To stop partway through

Select "No" in step 4 and press [ENTER] **10**.

Or

Press [RETURN] **23**.

Erase all programmes

RAM

All programmes and play lists created from them will be erased irretrievably when you use this procedure.

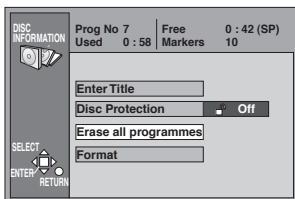
Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you have recorded on.

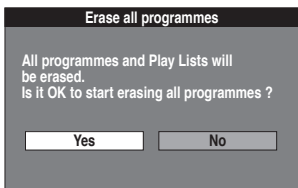
- 1 While stopped
Press [FUNCTIONS] **11**.
- 2 Use [▲, ▼, ◀, ▶] **10** to select "DISC INFORMATION" and press [ENTER] **10**.



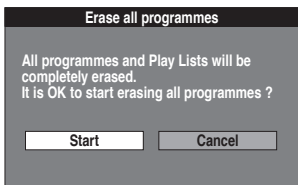
- 3 Use [▲, ▼] **10** to select "Erase all programmes" and press [ENTER] **10**.



- 4 Use [◀] **10** to select "Yes" and press [ENTER] **10**.



- 5 Use [◀] **10** to select "Start" and press [ENTER] **10**.



All programmes and play lists are erased.

To stop partway through

Select "No" in step 4 or "Cancel" in step 5 and press [ENTER] **10**.
Or
Press [RETURN] **23**.

Note

- You cannot erase computer data.
- The disc title will also be erased.
- If protection is active on even one programme (page 43), you cannot erase all programmes.

For your reference

- Nothing will be erased if the disc is write-protected (pages 38, 72).

Format

RAM

Some DVD-RAM are unformatted. You must format these discs before you can use them in this unit. Formatting also allows you to erase the entire contents of a disc.

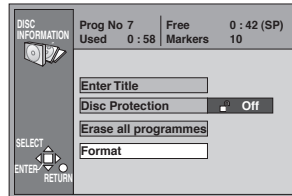
Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert the disc you want to format.

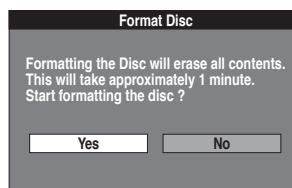
- 1 While stopped
Press [FUNCTIONS] **11**.
- 2 Use [▲, ▼, ◀, ▶] **10** to select "DISC INFORMATION" and press [ENTER] **10**.



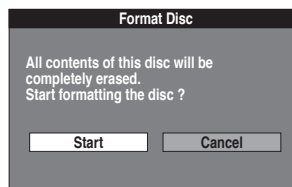
- 3 Use [▲, ▼] **10** to select "Format" and press [ENTER] **10**.



- 4 Use [◀] **10** to select "Yes" and press [ENTER] **10**.



- 5 Use [◀] **10** to select "Start" and press [ENTER] **10**.



- Formatting starts.
The message "Formatting is complete" appears when formatting is finished.

All recordings are irretrievably erased when a disc is formatted. Check the disc carefully before formatting to ensure it doesn't contain any programmes you want to keep.

To stop formatting

Select "No" in step 4 or "Cancel" in step 5 and press [ENTER] **10**.
Or
Press [RETURN] **23**.

Note

- Do not turn the unit off or disconnect the AC mains lead while the message "Formatting the disc" is on the television. This can render the disc unusable. (This can take up to 70 minutes. You can cancel formatting if it takes more than 2 minutes by pressing [RETURN] **23**. The disc must be reformatted if you do this.)
- All data on the disc is erased when it is formatted, including recordings made with this unit. Data written to the disc by a computer is also erased.

For your reference

- The disc cannot be formatted if the write protect tab is switched to "PROTECT". Release the protection to continue (page 72).
- Formatting cannot be performed on DVD-R or CD-R/RW.
- The message "Unable to format" appears when you try to format discs this unit cannot use.
- If you have used the direct navigator to protect a programme (page 43), the message "Contents on the disc have been protected. Start formatting the disc?" appears in step 5. Select "Start" if you want to format the disc. The contents will be erased even if they have been protected.

Finalize—Creating DVD-Video

DVD-R

You can play DVD-R on compatible DVD players by finalizing them on this unit, effectively making them into DVD-Video. The menus you create with this unit can also be used on the player.

Preparation

- Switch [DVD, TV] **15** to “DVD”.
- Insert the disc you want to finalize.

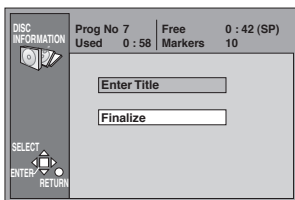
1 While stopped

Press [FUNCTIONS] **11**.

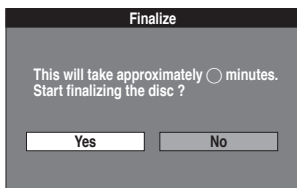
2 Use [▲, ▼, ◀, ▶] **10** to select “DISC INFORMATION” and press [ENTER] **10**.



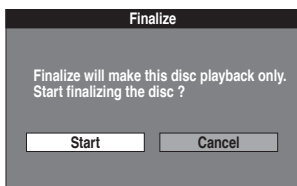
3 Use [▲, ▼] **10** to select “Finalize” and press [ENTER] **10**.



4 Use [◀] **10** to select “Yes” and press [ENTER] **10**.



5 Use [▶] **10** to select “Start” and press [ENTER] **10**.



- Finalizing starts.
The message “Finalizing is finished” appears when finalizing is finished.

■ To stop finalizing

Select “No” in step 4 or “Cancel” in step 5 and press [ENTER] **10**.

Or

Press [RETURN] **23**.

Note

- Do not turn the unit off or disconnect the AC mains lead while the message “Finalizing the Disc” is on the television. This can render the disc unusable.
- You can only finalize DVD-R that were recorded on this unit.
- You cannot record on DVD-R that have been finalized.
- Programmes longer than 5 minutes will be divided into about 5-minute chapters.
- The markers you entered (page 24) will be lost.
- Finalizing takes up to about 15 minutes.

Using the DIRECT NAVIGATOR

Selecting programmes to play

RAM DVD-R

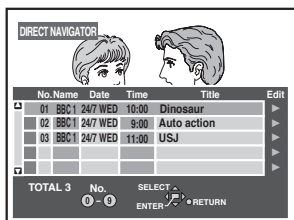
A list of programmes is created as you record them. You can use this list to find the programmes you want to watch.

Preparation

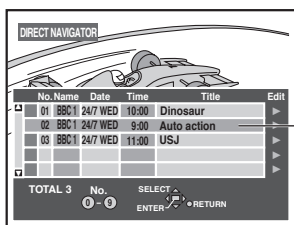
- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you have recorded on.

1 Press [DIRECT NAVIGATOR] **9**.

- The programme list appears.
- The images for the currently highlighted list are played in the background.



2 Use [**▲**, **▼**] **10** to select the programme you want to watch and press [ENTER] **10**.



For example, when you select programme number 2.

- Play of the images that were playing in the background continues.

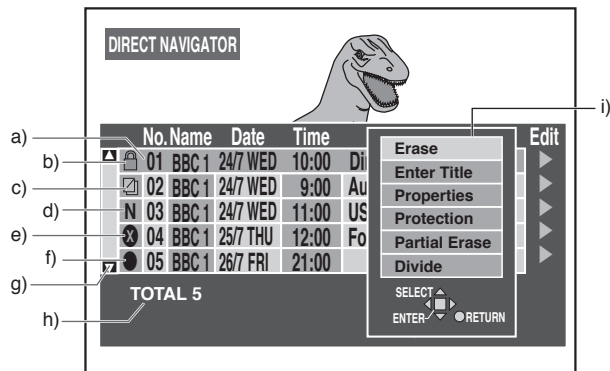
To clear the programme list

Press [DIRECT NAVIGATOR] **9** or [RETURN] **23**.

For your reference

- The direct navigator works while stopped, playing or recording.
- You can also select programmes from the list in step 2 by entering a 2-digit number with the numeric buttons **4**. If you enter a number larger than the total number of programmes, the last programme is selected.
- Titles are only displayed if you have given the programme a title.

About the programme list



- Programme number, broadcast name, recording date, time recording started, programme title** (if entered).
 - Programme 1 is selected in the example.
- Write-protected:**
 - Displayed when you have protected the programme. Programme 1 has been protected in the example.
- Copy-protected:**
 - Displayed when you have recorded a programme that has copy protection, from broadcast.
- N/P** (N: NTSC, P: PAL):
 - Displayed when you recorded using a different encoding system from that of the TV system currently selected on the unit.
- Unable to play:**
 - Displayed if you cannot play the programme.
- Currently recording:**
 - Displayed when the programme is being recorded.
- Scroll bar**
 - If there are more than six programmes, you can move down the list by using [**▲**, **▼**] **10** and this bar shows your approximate position in the list.
- Total number of programmes**
 - Shows the total number of programmes.
- Sub menu**
 - Displayed when you use [**▶**] **10**. (You can see this during simultaneous recording and play but you are unable to perform operations.)
 - Erase a programme (page 42).
 - Enter or edit a title (page 42).
 - Check a programme's contents (page 42).
 - Write-protect a programme (page 43).
 - Erase part of a programme (page 44).
 - Divide a selected programme into two (page 44).

For your reference

- The list can show up to 99 programmes that you have recorded.
- When using DVD-R, "Protection", "Partial Erase" and "Divide" are not displayed in the submenu.
- The contents of the list are recorded on the disc.
- **RAM**
 - When the disc is protected (pages 38, 72), you can only access "Properties". Release the protection to access other items.

Erasing programmes

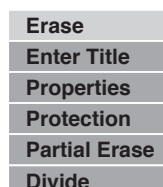
RAM DVD-R

The programme is erased completely when you use this procedure and cannot be retrieved. Check the programme carefully before erasing it to ensure it isn't one you want to keep.

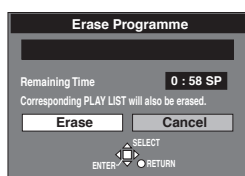
Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you have recorded on.

- 1 Press [DIRECT NAVIGATOR] **9**.
- 2 Use [**▲**, **▼**] **10** to select the desired programme.
- 3 Use [**▶**] **10** so the submenu appears.



- 4 Use [**▲**, **▼**] **10** to select "Erase" and press [ENTER] **10**.
- 5 Use [**◀**] **10** to select "Erase".



- 6 Press [ENTER] **10**.

■ To stop partway through

Select "Cancel" in step 6 and press [ENTER] **10**.

Or

Press [RETURN] **23**.

For your reference

- The disc's available recording time may not increase after erasing short programmes.
- Computer data is not erased.
- The available recording time on DVD-R does not increase when you erase programmes.

Entering and editing programme titles

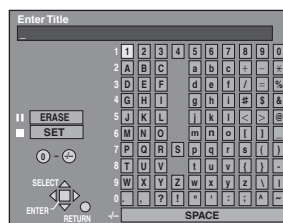
RAM DVD-R

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you have recorded on.

After performing steps 1 to 3 of "Erasing programmes", perform the following steps:

- 4 Use [**▲**, **▼**] **10** to select "Enter Title" and press [ENTER] **10**.
- 5 Enter or edit the title.



- "Entering titles" (page 37)

For your reference

You can give DVD-RAM titles of up to 64 characters and DVD-R titles of up to 44 characters. The full title is shown in the "Properties" screen, but if you enter a long title, only part of it is shown in the programme list.

Checking programme contents

RAM DVD-R

You can check the contents of a selected programme.

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you have recorded on.

After performing steps 1 to 3 of "Erasing programmes", perform the following steps:

- 4 Use [**▲**, **▼**] **10** to select "Properties" and press [ENTER] **10**.
- The contents of the programme are shown.



■ To return to the previous screen

Press [RETURN] **23**.

Protecting programmes

RAM

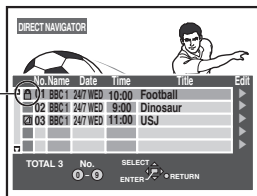
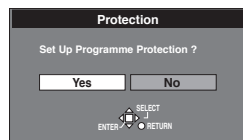
You can prevent accidental erasure of programmes by write-protecting them.

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you have recorded on.

After performing steps 1 to 3 of "Erasing programmes", perform the following steps:

- 4 Use [**▲**, **▼**] **10** to select "Protection" and press [ENTER] **10**.
- 5 Use [**◀**] **10** to select "Yes" and press [ENTER] **10**.



The padlock mark appears.

■ To stop partway through

Select "No" in step 5 and press [ENTER] **10**.
Or
Press [RETURN] **23**.

Releasing programme protection

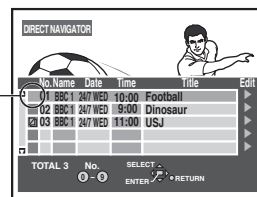
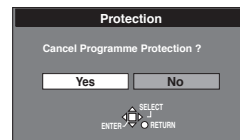
RAM

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you have recorded on.

After performing steps 1 to 3 of "Erasing programmes", perform the following steps:

- 4 Use [**▲**, **▼**] **10** to select "Protection" and press [ENTER] **10**.
- 5 Use [**◀**] **10** to select "Yes" and press [ENTER] **10**.



The padlock mark disappears.

■ To stop partway through

Select "No" in step 5 and press [ENTER] **10**.
Or
Press [RETURN] **23**.

For your reference

Programmes will be erased even if they are protected if you format the disc with DISC INFORMATION (page 39).

Erasing parts of a programme

RAM

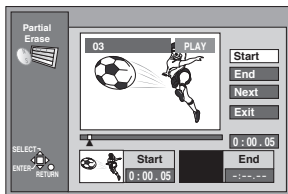
The specified parts of the programme are erased completely when you use this procedure and cannot be retrieved. Check the programme carefully to ensure it isn't one you want to keep.

Preparation

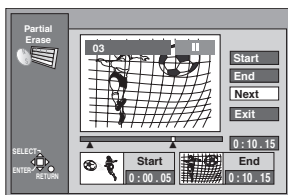
- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you have recorded on.

After performing steps 1 to 3 of "Erasing programmes", perform the following steps:

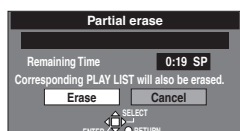
- 4 Use [**▲**, **▼**] **10** to select "Partial Erase" and press [ENTER] **10**.
- 5 Use search functions such as fast-forward and slow-motion to find the start point of the part you want to erase and press [ENTER] **10**.



- 6 Use search functions such as fast-forward and slow-motion to find the end point of the part you want to erase and press [ENTER] **10**.



- 7 Use [**▲**, **▼**] **10** to select "Exit" and press [ENTER] **10**.
- 8 Use [**◀**] **10** to select "Erase" and press [ENTER] **10**.
 - Play lists created with the erased part are also erased.



■ To stop partway through

Select "Cancel" in step 8 and press [ENTER] **10**.

Or

Press [RETURN] **23**.

■ To erase another part of the same programme

Select "Next" in step 7 and perform step 8, then repeat steps 5-8.

For your reference

- Use search and slow-motion to find the points.
- You cannot specify an end point before a start point or a start point after an end point.
- You may not be able to specify start and end points within 3 seconds of each other.
- You cannot specify start and end points if the picture recorded is stilled.
- The unit pauses play when the end of the programme is reached during this procedure.
- The disc's available recording time may not increase after erasing short parts of programmes.
- Play lists created with the erased part are also erased.

Dividing programmes

RAM

You can divide a selected programme into two.

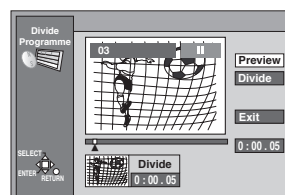
You must be sure you wish to divide a programme because once a programme has been divided it cannot be returned to its original form.

Preparation

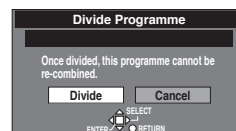
- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you have recorded on.

After performing steps 1 to 3 of "Erasing programmes", perform the following steps:

- 4 Use [**▲**, **▼**] **10** to select "Divide" and press [ENTER] **10**.
- 5 Use search functions such as fast-forward and slow-motion to find the point you want to divide and press [ENTER] **10**.



- 6 Use [**▲**, **▼**] **10** to select "Exit" and press [ENTER] **10**.
- 7 Use [**◀**] **10** to select "Divide" and press [ENTER] **10**.
 - The programme is divided at the point.



■ To stop partway through

Select "Cancel" in step 7 and press [ENTER] **10**.

Or

Press [RETURN] **23**.

■ To change the point to divide

Select "Divide" in step 6, then repeat steps 5-7.

■ To check the division point

By selecting "Preview" in step 6 and pressing [ENTER] **10**, play will begin from a point 10 seconds prior to the division point. You may wish to make sure that the division point is at an appropriate location.

Note

- The divided programmes retain the title of the original programme.
- A minute portion of the recording directly preceding the division point may be lost.

For your reference

- Use search and slow-motion to find the points.
- It is not possible to carry out "Divide" in the following cases:
 - When the resulting part(s) are extremely short.
 - When the total number of programme is more than 99.

Using PLAY LIST to edit programmes

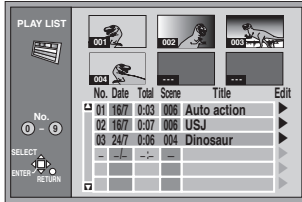
Displaying PLAY LIST

RAM

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you have recorded on.

Press [PLAY LIST] **22**.



The play list screen appears. Scenes are not displayed if you have not yet created a play list with the disc.

■ To clear the PLAY LIST screen

Press [PLAY LIST] **22** or [RETURN] **23**.

The screen returns to the state it was in before you called up the play list.

■ What you can do with the PLAY LIST screen

- Creating PLAY LIST (page 46)
- Playing PLAY LIST (page 47)
- Select a scene to play (page 47)
- Add, move, re-edit, and erase scenes (pages 48, 49)
- Copying PLAY LIST (page 50)
- Erasing a PLAY LIST (page 50)
- Give PLAY LIST titles (page 50)
- Checking PLAY LIST's contents (page 50)

Play Scenes

Edit

PL Copy

PL Erase

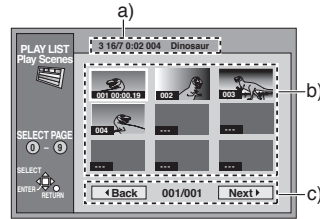
Enter Title

Properties

For your reference

- When the disc is protected (pages 38, 72), you can only access "Play Scenes" and "Properties". Release the protection to access other items.

About the PLAY LIST Scene screen



a) Play list information

This shows the play list number, date of creation (date/month), total play time, and the number of scenes it contains and title (if entered).

b) Scenes

9 scenes can be shown on a page.

c) Turning pages

If there are more than 9 scenes, use [**▲**, **▼**, **◀**, **▶**] **10** to select "< Back" or "Next >" and press [ENTER] **10** to move to the previous page or next page. You can also enter the three digits with the numeric buttons **4**.

Creating PLAY LIST

RAM

You can specify start and end points to create a scene, then specify the order in which these scenes are played. These scenes are not recorded separately so this doesn't use up much of the disc's capacity.

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you have recorded on.

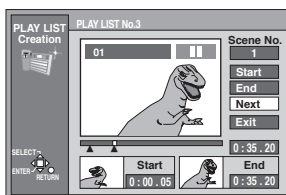
- 1 While stopped
Press [FUNCTIONS] **11**.
- 2 Use [**▲**, **▼**, **◀**, **▶**] **10** to select "CREATE PLAY LIST" and press [ENTER] **10**.



- 3 Use search functions such as fast-forward and slow-motion to find the start point of the scene and press [ENTER] **10**.



- 4 Use search functions such as fast-forward and slow-motion to find the end point of the scene and press [ENTER] **10**.



- 5 Use [**▲**, **▼**] **10** to select "Exit" and press [ENTER] **10**.

■ To stop partway through

Press [RETURN] **23**.

■ To clear the PLAY LIST screen

Press [PLAY LIST] **22** or [RETURN] **23**.

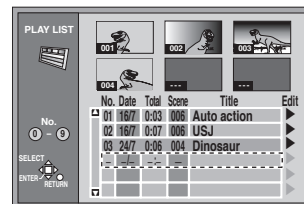
The screen returns to the state it was in before you called up the play list.

■ To specify another scene

Select "Next" after step 4 and press [ENTER] **10**, then repeat steps 3 and 4.

For your reference

- You can fast-forward, rewind, pause, and slow-motion while playing scenes just as you can during normal play.
- One disc can have a maximum of 99 play lists and 999 scenes. These numbers may be reduced under some conditions.
- You cannot specify an end point before a start point or a start point after an end point.
- If you specify an end point but not a start point, the unit determines the beginning of the programme as the start point. Similarly, if you specify a start point but not an end point, the unit determines the end of the programme as the end point.
- You may not be able to specify start and end points if the material is still pictures recorded on other equipment.
- The unit pauses play when the end of the last programme on the disc is reached during this procedure.
- You can also display the CREATE PLAY LIST screen by selecting "—" at the bottom of the play list.



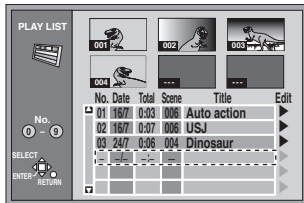
Playing PLAY LIST

RAM

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you created play lists on.

- 1 Press [PLAY LIST] **22**.
- 2 Use [**▲**, **▼**] **10** to select the play list you want to play and press [ENTER] **10**.
 - The play list you select is played.
 - You can display the play lists after the sixth one by moving [**▼**] **10**.



■ To stop PLAY LIST play

Press [**■**] **7**.

The play list appears.

For your reference

You can also select play lists from the list in step 2 by entering a 2-digit number with the numeric buttons **4**.

If you enter a number larger than the total number of play lists, the last play list is selected.

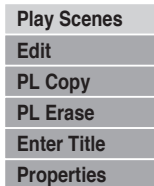
Playing Scenes

RAM

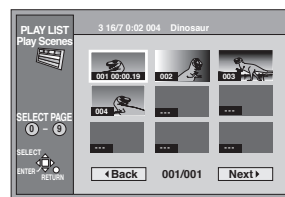
Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you created play lists on.

- 1 Press [PLAY LIST] **22**.
- 2 Use [**▲**, **▼**] **10** to select the play list that contains the scene you want to play and use [**▶**] **10**.



- 3 Use [**▲**, **▼**] **10** to select "Play Scenes" and press [ENTER] **10**.



- 4 Use [**▲**, **▼**, **◀**, **▶**] **10** to select the scene you want to play and press [ENTER] **10**.
 - The scene you select is played.

■ To stop scene play

Press [**■**] **7**.

The scene list appears.

■ To show scene 10 and later

In step 4, use [**▲**, **▼**, **◀**, **▶**] **10** to select "Next ▶" and press [ENTER] **10**.

For your reference

- You can also select a page of scenes in step 4 by entering a 3-digit number with the numeric buttons **4**.

To erase a PLAY LIST or a PLAY LIST Scene during play

- 1 During play a play list or a play list scene Press [ERASE] **30**.
 - A confirmation message will be displayed.
- 2 Press [**◀**] **10** to select "Yes" and press [ENTER] **10**.
 - Select "No" and press [ENTER] **10**, or press [RETURN] **23** to cancel.

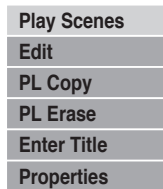
Adding Scenes to a PLAY LIST

RAM

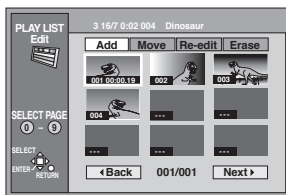
Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you created play lists on.

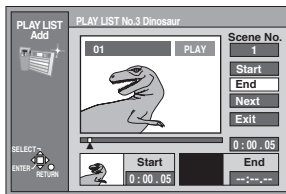
- 1 Press [PLAY LIST] **22**.
- 2 Use [▲, ▼] **10** to select the desired play list and press [▶] **10**.



- 3 Use [▲, ▼] **10** to select "Edit" and press [ENTER] **10**.



- 4 Use [◀, ▶] **10** to select "Add" and press [ENTER] **10**.
- 5 Use [▲, ▼, ◀, ▶] **10** to select the scene after the position you want to add the scene and press [ENTER] **10**.
- 6 Use search functions such as fast-forward and slow-motion to find the start point of the scene and press [ENTER] **10**.



- 7 Use search functions such as fast-forward and slow-motion to find the end point of the scene and press [ENTER] **10**.
- 8 Use [▲, ▼] **10** to select "Exit" and press [ENTER] **10**.
 - The screen from step 4 reappears.

■ To return to the previous screen

Press [RETURN] **23**.

■ To add other scene

- 1) Use [▲, ▼] **10** after step 7 to select "Next" and press [ENTER] **10**.
- 2) Repeat steps 6, and 7.

For your reference

You can fast-forward, rewind, pause, and slow-motion while playing scenes just as you can during normal play.

Moving a Scene

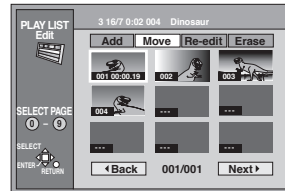
RAM

Preparation

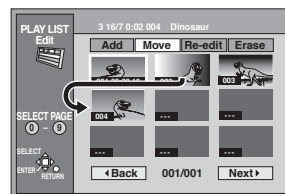
- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you created play lists on.

After performing steps 1 to 3 of "Adding Scenes to PLAY LIST", perform the following steps:

- 4 Use [◀, ▶] **10** to select "Move" and press [ENTER] **10**.



- 5 Use [▲, ▼, ◀, ▶] **10** to select the scene you want to move and press [ENTER] **10**.
- 6 Use [▲, ▼, ◀, ▶] **10** to select the scene currently in the position to which you want to move the scene and press [ENTER] **10**.
 - The scene you selected in step 5 moves to the position in front of the scene selected.



■ To move another scene
Repeat steps 5 and 6.

To re-edit a PLAY LIST Scene

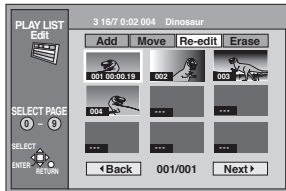
RAM

Preparation

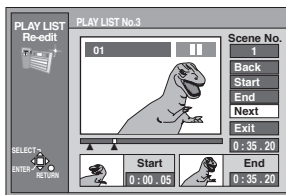
- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you created play lists on.

After performing steps 1 to 3 of "Adding Scenes to PLAY LIST", perform the following steps:

- 4 Use [**◀**, **▶**] **10** to select "Re-edit" and press [ENTER] **10**.



- 5 Use [**▲**, **▼**, **◀**, **▶**] **10** to select the scene you want to re-edit and press [ENTER] **10**.
- 6 Use search function such as fast-forward and slow-motion to find the start point of the scene and press [ENTER] **10**.
- 7 Use search functions such as fast-forward and slow-motion to find the end point of the scene and press [ENTER] **10**.



- 8 Use [**▲**, **▼**] **10** to select "Exit" and press [ENTER] **10**.

■ To re-edit another scene

- (1) Use [**▲**, **▼**] **10** after step 7 to select "Next" or "Back" and press [ENTER] **10** until you find the scene you want to re-edit.
- (2) Repeat steps 5-7 to continue re-editing other scenes.

Note

- You cannot specify an end point before a start point or a start point after an end point.

For your reference

- You can fast-forward, rewind, pause and slow-motion while playing scenes just as you can during normal play.

Erasing a Scene from a PLAY LIST

RAM

Preparation

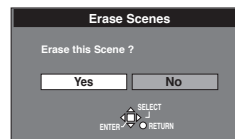
- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you created play lists on.

After performing steps 1 to 3 of "Adding Scenes to PLAY LIST", perform the following steps:

- 4 Use [**◀**, **▶**] **10** to select "Erase" and press [ENTER] **10**.



- 5 Use [**▲**, **▼**, **◀**, **▶**] **10** to select the scene you want to erase and press [ENTER] **10**.
- 6 Use [**◀**] **10** to select "Yes" and press [ENTER] **10**.



The selected scene is erased from the play list.

■ To erase other scene

Repeat steps 5 and 6.

■ To stop midway

Select "No" in step 6 and press [ENTER] **10**.

Or

Press [RETURN] **23**.

For your reference

The play list itself is erased if you erase all the scenes in it.

Copying PLAY LIST

RAM

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you created play lists on.

After performing steps 1 to 2 of "Adding Scenes to PLAY LIST", perform the following steps:

- 3 Use [**▲**, **▼**] **10** to select "PL Copy" and press [ENTER] **10**.
- 4 Use [**◀**] **10** to select "Yes" and press [ENTER] **10**.



The copied play list appears at the bottom of the list.

■ To stop partway

Select "No" in step 4 and press [ENTER] **10**.

Or

Press [RETURN] **23**.

Erasing a PLAY LIST

RAM

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you created play lists on.

After performing steps 1 to 2 of "Adding Scenes to PLAY LIST", perform the following steps:

- 3 Use [**▲**, **▼**] **10** to select "PL Erase" and press [ENTER] **10**.
- 4 Use [**◀**] **10** to select "Yes" and press [ENTER] **10**.



The play list is erased.

■ To stop partway

Select "No" in step 4 and press [ENTER] **10**.

Or

Press [RETURN] **23**.

Titling PLAY LIST

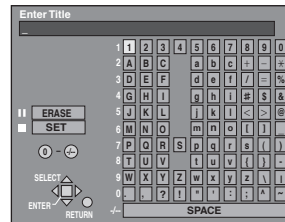
RAM

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you created play lists on.

After performing steps 1 to 2 of "Adding Scenes to PLAY LIST", perform the following steps:

- 3 Use [**▲**, **▼**] **10** to select "Enter Title" and press [ENTER] **10**.



- 4 Enter the title.

- "Entering titles" (page 37)

For your reference

You can give play lists on DVD-RAM titles of up to 64 characters. The full title is shown in the "Properties" screen, but if you enter a long title, only part of it is shown in the play list screen.

Checking PLAY LIST's contents

RAM

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Insert a disc you created play lists on.

After performing steps 1 to 2 of "Adding Scenes to PLAY LIST", perform the following steps:

- 3 Use [**▲**, **▼**] **10** to select "Properties" and press [ENTER] **10**.



Using DISPLAY menus

RAM DVD-R DVD-V CD VCD MP3

Remote control only

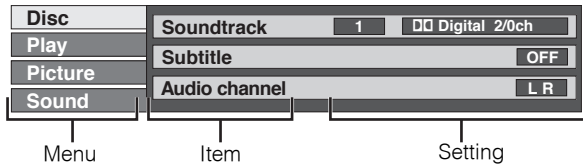
DISPLAY menus contain information about the disc or unit. These menus allow you to perform operations by changing this information.

Common procedures

Preparation

Switch [DVD, TV] 15 to "DVD".

1 Press [DISPLAY] 34.



2 Use [▲, ▼] 10 to select the menu and press [▶] 10.

3 Use [▲, ▼] 10 to select the item and press [▶] 10.

4 Use [▲, ▼] 10 to select the setting.

- Some options require different operations. Follow the on-screen instructions and the instructions described later.

To return to the previous screen

Press [RETURN] 23.

When you are finished

Press [DISPLAY] 34.

For your reference

- The screens depend on the disc contents.
- Depending on the condition of the unit (playing, stopped, etc.) and the type of software you are playing, there are some items that you cannot select or change.

Disc menu

RAM DVD-R DVD-V VCD



Soundtrack

Soundtrack language DVD-V (See [A] below.)

Change the number to select a soundtrack.

Audio attribute RAM DVD-R DVD-V (See [B] below.)

Karaoke vocals, on and off (Karaoke DVD-V only)

Solo: ON ↔ OFF

Duet: OFF ↔ V1 + V2 ↔ V1 ↔ V2

Subtitle

Subtitle language DVD-V (see [A] below.)

Change the number to select a subtitle language.

Subtitles on/off RAM DVD-R DVD-V

Turn the subtitles on or off.

Angle DVD-V

Change the number to select an angle.

Audio channel RAM VCD

Select the audio channel. (page 23)

PBC VCD

Playback control on/off

Indicates whether menu play (playback control) is on or off.

[A] Soundtrack/Subtitle language

ENG: English	SVE: Swedish	CHI: Chinese
FRA: French	NOR: Norwegian	KOR: Korean
DEU: German	DAN: Danish	MAL: Malay
ITA: Italian	POR: Portuguese	VIE: Vietnamese
ESP: Spanish	RUS: Russian	THA: Thai
NLD: Dutch	JPN: Japanese	*: Others

[B] Audio attributes

DD Digital/DTS/MPEG: Signal type

k (kHz): Sampling frequency

b (bit): Number of bits

ch (channel): Number of channels

For your reference

- You can only select subtitles, soundtracks, and angles if they are recorded on the disc.
- Some discs allow changes to soundtracks, subtitles, and angles only by using the disc's menus.
- If the subtitles overlap closed captions recorded on discs, turn the subtitles off.

Play menuRAM DVD-R DVD-V **CD VCD MP3**

Disc	Repeat Play	OFF
Play	Marker	1-10 *****
Picture		
Sound		

Repeat play RAM DVD-R DVD-V **CD VCD MP3**

(page 53)

You can play a programme, play list, chapter, title, group or track repeatedly.

Marker RAM DVD-R DVD-V **CD VCD MP3** (page 24)

You can mark points on a disc to return to later.

Picture menuRAM DVD-R DVD-V **VCD**

Disc	MODE	Normal
Play	DNR	ON
Picture		
Sound		

MODE

To select the picture mode during play

Normal: Normal mode

Soft: Soft mode

Fine: Fine mode

Cinema: Cinema mode (mellows movie, enhances detail in dark scenes.)

DNR

You can turn on and off the DNR.

ON ↔ OFF

Sound menu

RAM DVD-R DVD-V

Disc	V. S. S.	OFF
Play	Dialog Enhancer	OFF
Picture		
Sound		

V.S.S. RAM DVD-R DVD-V

(Only with Dolby Digital with 2 or more channels)

Enjoy a surround-like effect if you are using two front speakers only. The effect is broadened and sound seems to come from virtual speakers on either side if the disc has surround signals recorded on it.

Natural ↔ Emphasis ↔ OFF

Note

- V.S.S. will not work, or will have less effect, with some discs, even if you select "Natural" or "Emphasis".
- Turn V.S.S. off if it causes distortion.

Dialog Enhancer RAM DVD-R DVD-V

(Dolby Digital, 3-channel or over only, including a center channel)

The volume of the center channel is raised to make dialog easier to hear.

ON ↔ OFF

Repeat play

RAM DVD-R DVD-V CD VCD MP3

During play

Use [▲, ▼] 10.



The display changes as illustrated.

RAM DVD-R

PRG (PROGRAMME) ↔ All ↔ OFF

DVD-V

Chapter ↔ Title ↔ OFF

CD VCD

Track ↔ All ↔ OFF

MP3

Track ↔ Group ↔ OFF

While playing a play list

RAM

PL (PLAY LIST) ↔ OFF

If the Video CD has playback control

- 1) While stopped (the screen saver is on the television), press the numeric buttons 4 to select a track.
- 2) Do the above operation.



Note

- Repeat play may not work as desired with some discs.
- Repeat play does not work if the disc's elapsed play time is not shown on the unit's display.
- You cannot use repeat play to repeat an entire DVD-Video.
- [ERASE] 30 does not work while in repeat play mode.

Child Lock

The Child Lock deactivates all buttons on the unit and remote control. Use it to prevent other people from operating the unit.

Remote control only

To activate the Child Lock

Hold down [ENTER] **10** and [RETURN] **23** simultaneously until "X HOLD" appears on the unit's display.

- If you press a button while the Child Lock is on, "X HOLD" appears on the unit's display and operation is impossible.

To cancel the Child Lock

Hold down [ENTER] **10** and [RETURN] **23** simultaneously until "X HOLD" disappears.


- If you cannot cancel the Child Lock, press [RETURN] **23** and then perform the operation.

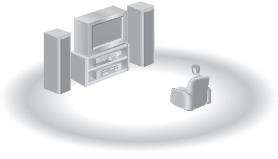
Connecting external equipment

First of all, please disconnect AC mains leads of all units which you are going to connect with before connecting and disconnecting cables.

Enjoying more powerful sound

Refer to the relevant pages for details.

Enjoying 5.1-channel surround sound with Dolby Digital and DTS 	Digital connection Connect to an amplifier with built-in decoders.	Page 55 [A]	SETUP—Sound • Set "PCM Down Conversion" to "On". • Set "Dolby Digital" and "DTS" to suit the equipment.	Pages 60, 62
			Change speaker settings on the amplifier.	—

To enjoy stereo or Dolby Pro Logic 	Analog connection Connect to an analog amplifier or system component.	Page 55 [B]	SETUP—Sound • Set "PCM Down Conversion" to "Off".	Pages 60, 62
	Digital connection Connect to a digital amplifier or system component.	Page 55 [A]	SETUP—Sound • Set "PCM Down Conversion" to "On". • Set "Dolby Digital" to "PCM". • Set "DTS" to "Off".	Pages 60, 62

Other uses

Record to digital recording equipment or cassette deck ([A] [B] page 55)

Record from an video cassette recorder (page 57)

Use connection [B] to enjoy discs recorded with a sampling frequency of 96 kHz. Sound will not be output if you use connection [A] and set "PCM Down Conversion" to "Off" due to copy protection. (Convert the signal to 48 kHz to enjoy this type of audio.)

For your reference

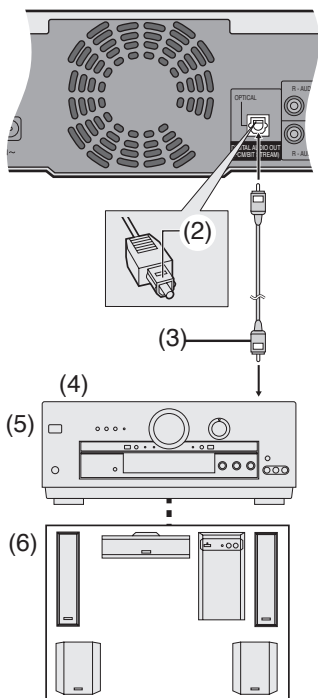
- The equipment connections described are examples.
- Before connection, turn off all equipment and read the appropriate operating instructions.

Note

You can enjoy Dolby Digital in stereo with this unit alone. (This unit does not have a DTS decoder.)

Connecting a digital amplifier or system component [A]

(1)



- (1) Rear of this unit
- (2) Insert fully, with this side facing up. (Do not bend when connecting.)
- (3) Optical digital audio cable (not supplied)
- (4) To optical digital input
- (5) Amplifier or system component (with or without decoders) (not supplied)
- (6) Speakers (not supplied)
 - Example: 6 speakers

For your reference

- Change the settings in the "Sound" menus (page 60) to suit the digital equipment you have connected. If the equipment can decode Dolby Digital, set "Dolby Digital" to "Bitstream" (factory setting). If the equipment can decode DTS, set "DTS" to "Bitstream".
- The DTS decoder must be compatible with the signals recorded on DVD.

You can record the digital signal directly onto digital recording equipment.

The signals on DVDs will be converted to 48 kHz/16 bit linear PCM.

When recording DVDs, ensure the following conditions are met.

- There is no copy guard recorded on the disc.
- The recording equipment can handle a sampling frequency of 48 kHz/16 bit.
- You cannot record MP3.

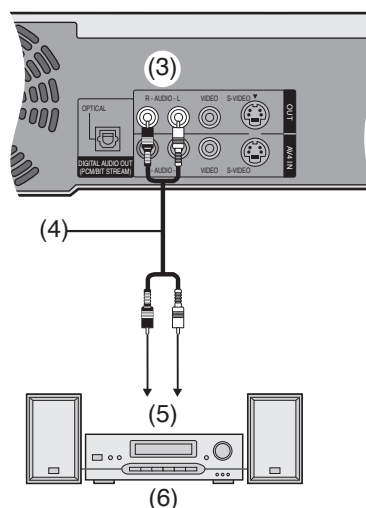
If you want to use the synchro recording feature on your digital recording equipment and you use connection [A] or [B] to record from CDs or video CDs, first pause at the point you want to record from, activate the synchro feature, then restart play on the unit.

Connecting an analog amplifier or system component [B]

(1)



(2)



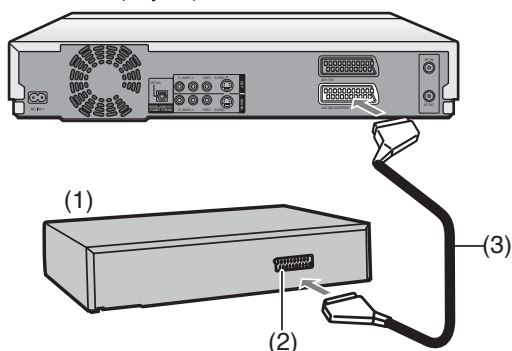
- (1) Audio cable
 - a) Red (R)
 - b) White (L)
- (2) Rear panel of this unit
- (3) To AUDIO OUT (L/R)
- (4) Audio cable (not supplied)
- (5) Audio input (L/R)
- (6) 2-channel analog amplifier or system component (not supplied)

■ To enjoy Dolby Pro Logic (page 69)

You will also need to connect center and surround speakers in addition to the front speakers to enjoy surround sound. Read the instructions for the equipment for connection details. Turn V.S.S. off. Dolby Pro Logic will not function correctly if V.S.S. is on.

Connecting a Decoder

Decoder here refers to the device used to decode scrambled broadcasts (Pay TV).



- (1) Decoder (not supplied)
- (2) 21-pin Scart socket
- (3) 21-pin Scart cable (not supplied)

Connect a 21-pin Scart cable (not supplied) to the AV2 21-pin Scart socket on the unit and to the 21-pin Scart socket on the decoder.

Connect the decoder's mains lead to an AC mains socket.

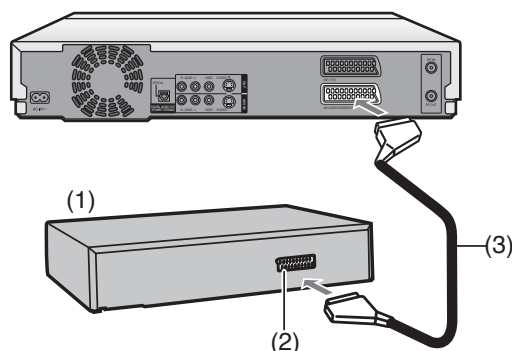
Set "AV2 Connection" to "DECODER". (page 61)

- If you connect an other equipment with RGB output capability to the AV2 socket on this unit, the output signal of the equipment must be set to RGB when you have set "AV2 Input" to "RGB (PAL only)".

Note

[RGB] means separate Red/Green/Blue colour signals. If you connect a TV equipped with RGB input capability to the AV1 socket on this unit, and a decoder equipped with RGB output capability to the AV2 socket, the TV can receive RGB signal input from the decoder via the unit.

Connecting a satellite receiver or digital receiver



- (1) Satellite receiver (not supplied)
- (2) 21-pin Scart socket
- (3) 21-pin Scart cable (not supplied)

Connect a 21-pin Scart cable (not supplied) to the AV2 21-pin Scart socket on the unit and to the 21-pin Scart socket on the satellite receiver.

Connect the satellite receiver's mains lead to an AC mains socket.

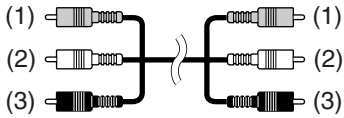
Set "AV2 Connection" to "Ext Link 1" or "Ext Link 2". (page 61)

- If you connect an other equipment with RGB output capability to the AV2 socket on this unit, the output signal of the equipment must be set to RGB when you have set "AV2 Input" to "RGB (PAL only)".

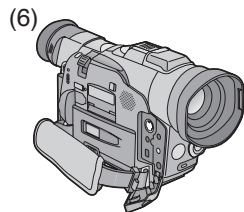
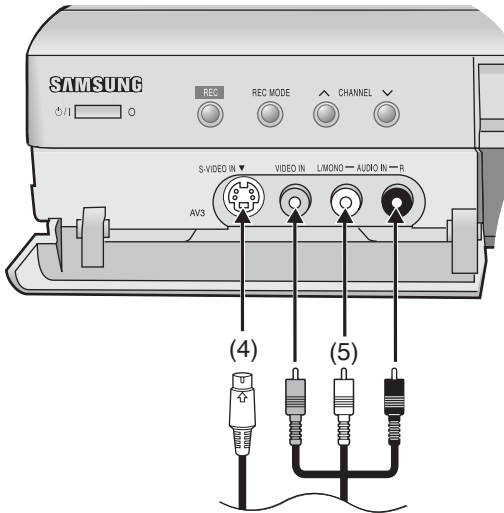
Connecting a video cassette recorder

When connecting to the AV3 input terminals on the front of the unit

Audio/Video cable



- (1) Yellow (VIDEO)
- (2) White (L)
- (3) Red (R)



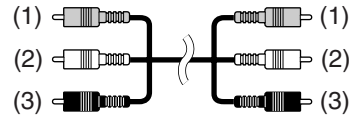
- (4) S video cable (not supplied)
- (5) Audio/Video cable (not supplied)
- (6) Other playback equipment
 - Connect to the video and audio output terminals.

Note

If the audio output of the other equipment is monaural, connect to L/MONO. (Both left and right channels are recorded when connected through L/MONO.)

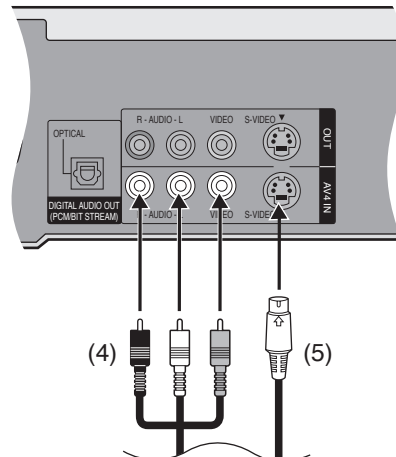
When connecting to the input terminals on the rear of the unit

Audio/Video cable

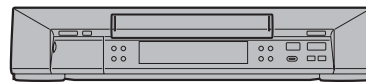


- (1) Yellow (VIDEO)
- (2) White (L)
- (3) Red (R)

Rear panel of this unit



(6)



- (4) Audio/Video cable (not supplied)
- (5) S video cable (not supplied)
- (6) Other playback equipment
 - Connect to the video and audio output terminals.

Note

If audio output of the other equipment is monaural, use a stereo-monaural conversion cable (not supplied).

Changing the unit's settings

Common procedures

Refer to the summary of settings table on page 59 and use the following procedure to change the settings if necessary.

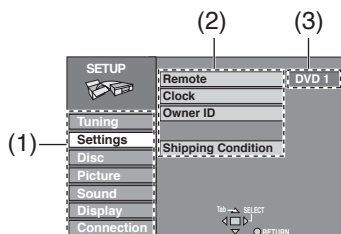
Preparation

- Switch [DVD, TV] **15** to "DVD".

1 While stopped

Press [FUNCTIONS] **11** to show the FUNCTIONS window.

- 2 Use [▲, ▼, ◀, ▶] **10** to select "SETUP" and press [ENTER] **10**.



(1) Menus

The SETUP menu is made up of seven menus—Tuning, Settings, Disc, Picture, Sound, Display and Connection. Select the menu's tab to display the items.

(2) Items

A list of items in the menu you selected.

(3) Options

This shows the current settings. The options are shown when you select an item.

- 3 Use [▲, ▼] **10** to select the menu's tab and press [◀] or [▶] **10**.

- 4 Use [▲, ▼] **10** to select the item you want to change and press [ENTER] **10**.

- 5 Use [▲, ▼] **10** to select the option and press [ENTER] **10**.

- Some options require different operations. Follow the on-screen instructions and the instructions described.

■ To return to the previous screen

Press [RETURN] **23**. Even if you have changed an option, the change is not accepted unless you press [ENTER] **10**.

■ When you are finished

Press [FUNCTIONS] **11**.

For your reference

- The unit retains these settings in its memory until you change them, even if you turn it off.

Summary of settings

This description shows the initial settings for this unit. See page 58 for details on menu operation.

• Underlined items are the factory presets.

Tuning

Manual

Auto-Setup Restart

Download

Settings

Remote

This function is not available in this unit.

Don't change the Remote setting.

Clock

Manual Clock Setting (page 63)

You can adjust the clock.

Auto Clock Setting (page 63)

The unit adjusts the clock automatically.

Owner ID

[PIN number] [Name]

[House No.] [Postcode]

Shipping Condition

The all settings in the SETUP screen return to the factory settings. (except for the ratings level and the password, and owner ID settings)

[Yes] [No]

Disc DVD-V

Setting the language of disc menu, audio and subtitles for playing the DVD-Video.

• Some discs are designed to start in a certain language despite any changes you make here.

• If a language which is not recorded is selected, or if languages are already fixed in disc, the default language in the disc will play instead.

Soundtrack

Choose the preferred audio language.

[English] [French] [German] [Italian] [Spanish] [Original]
[Other *****]

Subtitle

Choose the preferred subtitle language.

[Automatic] [English] [French] [German] [Italian]
[Spanish] [Other *****]

Menus

Choose the preferred language for disc menus.

[English] [French] [German] [Italian] [Spanish]
[Other *****]

Original

The original language of each disc will be selected.

Other *****

This is language code setting.

Input a code number with the numeric buttons **4**.

(See below language code list)

Automatic

If the language selected for "Soundtrack" is not available, subtitles of that language will automatically appear if available on that disc.

• Some discs are designed to start in a certain language despite any changes you make here.

Ratings (page 62)

You can limit play of DVDs unsuitable for some audiences, children, for example. Play and changes to the settings are not possible unless you enter a password.

Setting ratings (When level 8 is selected)

[8 No Limit]: All DVD-Video can be played.

[1] to [7]: Prohibits play of DVD-Video with corresponding ratings recorded on them.

[0 Lock All]: Prohibits play of all DVD-Video.

Changing ratings (When level 0–7 is selected)

[Unlock Recorder] [Change Password]

[Change Level] [Temporary Unlock]

Language code list

Abkhazian: 6566	Chinese: 9072	Hausa: 7265	Lithuanian: 7684	Romanian: 8279	Telugu: 8469
Afar: 6565	Corsican: 6779	Hebrew: 7387	Macedonian: 7775	Russian: 8285	Thai: 8472
Afrikaans: 6570	Croatian: 7282	Hindi: 7273	Malagasy: 7771	Samoan: 8377	Tibetan: 6679
Albanian: 8381	Czech: 6783	Hungarian: 7285	Malay: 7783	Sanskrit: 8365	Tigrinya: 8473
Ameharic: 6577	Danish: 6865	Icelandic: 7383	Malayalam: 7776	Scots Gaelic: 7168	Tonga: 8479
Arabic: 6582	Dutch: 7876	Indonesian: 7378	Maltese: 7784	Serbian: 8382	Turkish: 8482
Armenian: 7289	English: 6978	Interlingua: 7365	Maori: 7773	Serbo-Croatian: 8372	Turkmen: 8475
Assamese: 6583	Esperanto: 6979	Irish: 7165	Marathi: 7782	Shona: 8378	Twi: 8487
Aymara: 6588	Estonian: 6984	Italian: 7384	Moldavian: 7779	Sindhi: 8368	Ukrainian: 8575
Azerbaijani: 6590	Faroese: 7079	Japanese: 7465	Mongolian: 7778	Singhalese: 8373	Urdu: 8582
Bashkir: 6665	Fiji: 7074	Javanese: 7487	Nauru: 7865	Slovak: 8375	Uzbek: 8590
Basque: 6985	Finnish: 7073	Kannada: 7578	Nepali: 7869	Slovenian: 8376	Vietnamese: 8673
Bengali; Bangla: 6678	French: 7082	Kashmiri: 7583	Norwegian: 7879	Somali: 8379	Volapük: 8679
Bhutani: 6890	Frisian: 7089	Kazakh: 7575	Oriya: 7982	Spanish: 6983	Welsh: 6789
Bihari: 6672	Galician: 7176	Kirghiz: 7589	Pashto, Pushto: 8083	Sundanese: 8385	Wolof: 8779
Breton: 6682	Georgian: 7565	Korean: 7579	Persian: 7065	Swahili: 8387	Xhosa: 8872
Bulgarian: 6671	German: 6869	Kurdish: 7585	Polish: 8076	Swedish: 8386	Yiddish: 7473
Burmese: 7789	Greek: 6976	Laotian: 7679	Portuguese: 8084	Tagalog: 8476	Yoruba: 8979
Byelorussian: 6669	Greenlandic: 7576	Latin: 7665	Punjabi: 8065	Tajik: 8471	Zulu: 9085
Cambodian: 7577	Guarani: 7178	Latvian, Lettish: 7686	Quechua: 8185	Tamil: 8465	
Catalan: 6765	Gujarati: 7185	Lingala: 7678	Rhaeto-Romance: 8277	Tatar: 8484	

- Underlined items are the factory presets.

Picture

Rec Resolution (REC)

Select the picture sharpness when recording.

[Fine] [Normal]

Fine

Pictures become clear and vivid. Normally, use this setting.

Normal

Select it when recording noisy pictures.

- "Fine" is automatically selected if you set "TV System" to "NTSC".

Hybrid VBR Resolution (REC)

Switch between automatic and fixed hybrid VBR resolution when recording.

[Automatic] [Fixed]

Automatic

The unit automatically switches resolution rates during recording according to the image. The unit reduces block noise, which occurs during MPEG compression, by selecting the optimum rate.

Fixed

The resolution rate is fixed to ensure the resolution rate is not reduced.

Still Mode (PLAY)

Select the type of picture shown when you pause play.

[Automatic] [Field] [Frame]

Field

Less blurred field stills are shown. Select if jittering occurs when "Automatic" is selected.

Frame

Sharper frame stills are shown. Select if small text or fine patterns cannot be seen clearly when "Automatic" is selected.

Sound

Audio during Search (PLAY)

[RAM] [DVD-R] [DVD-V] [VCD]

Choose whether to have sound during search.

[On] [Off]

Dynamic Range Compression (PLAY)

[DVD-V] (Dolby Digital only)

Change the dynamic range for late night viewing.

[On] [Off]

Bilingual Audio Selection (REC) (page 23)

Select whether to record the main or secondary audio type when recording to DVD-R.

[M1] [M2]

Digital Audio Output (PLAY)

(Press [ENTER] **10** to show the following settings. To return to the previous screen, press [RETURN] **23**.)

PCM Down Conversion (page 62)

[On] [Off]

- Select "On" when using a copyright protected disc, since the audio output does not work.

Dolby Digital (page 62)

Choose whether to output Dolby Digital bitstream signals for decoding on other equipment or to convert them to PCM signals for 2-channel output.

[Bitstream] [PCM]

DTS (page 62)

Choose whether to output DTS bitstream signals for decoding on other equipment or to not output signals at all.

[Bitstream] [Off]

MPEG (page 62)

Choose whether to output MPEG bitstream signals for decoding on other equipment or to convert them to PCM signals for 2-channel output.

[Bitstream] [PCM]

- Underlined items are the factory presets.

Display

On-Screen Messages

Choose whether to show on-screen messages automatically or not.

[Automatic] [Off]

Grey Background

Select whether to show the grey background, normally shown when television reception is poor.

[On] [Off]

Channel Guide

[On] [Off]

On

The Channel Guide will appear for a few seconds each time the channel is changed with [V], [A], [CH] **18**.

Off

The Channel Guide will not appear.

FL Display

Changes the brightness of the unit's display.

[Bright] [Dim]

Connection

TV Aspect (page 19)

Choose the setting to suit your television and preference.

[Norm (4:3)] [Wide (16:9)]

TV System

[PAL] [NTSC]

PAL

Select when connecting to a PAL or Multi-system television.
Select to record television programmes and PAL input from other equipment.

NTSC

Select when connecting to a NTSC television.
Select to record NTSC input from other equipment.
Television programmes cannot be recorded properly.

- To change the TV system (PAL/NTSC) setting:
While stopped, keep pressing [■] **7** and [▲, OPEN/CLOSE] **39** on the main unit for 5 or more seconds.
- If the playback picture on the TV screen from a Video CD isn't shown correctly:
 - When connecting to Multi-system TV, select "NTSC". (After viewing the disc, return the setting to "PAL".)
 - When connecting to PAL TV, the lower part of the picture cannot be displayed correctly during the fast forward and rewind.

Norm (4:3) TV Settings (DVD-Video)

You can select how to reflect the image on the TV, when you watch 16:9 images (DVD-Video) on 4:3 TV.

[Pan & Scan] [Letterbox]

Pan & Scan

Video recorded for a widescreen is played with the sides cut off if the pan & scan was specified by the producer of the disc. 16:9 software prohibited from being shown in the pan & scan style will appear in the letterbox style (with black bands above and below the picture) despite the setting here.



Letterbox

Video recorded for a widescreen is played in the letterbox style.



Norm (4:3) TV Settings (DVD-RAM)

You can select how to reflect the image on the TV, when you watch 16:9 images (DVD-RAM) on 4:3 TV.

[Norm (4:3)] [Pan & Scan] [Letterbox]

Norm (4:3)

Programmes played as recorded.

Pan & Scan

Video recorded for a widescreen is played with the sides cut off if the pan & scan format is specified at the time of recording.

Letterbox

Video recorded for a widescreen is played in the letterbox style.

AV1/AV2 Settings

(Press [ENTER] **10** to show the following settings. To return to the previous screen, press [RETURN] **23**.)

AV1 Output

[Video] [S-Video] [RGB] (page 56)

AV2 Input

[Video] [S-Video] [RGB (PAL only)]

AV2 Connection

[NORMAL] [DECODER] [Ext Link 1] [Ext Link 2]

DECODER

When a decoder is connected.

Ext Link 1

When a digital receiver which transmits a special control signal recordings via the 21-pin Scart cable, for example the F.U.N. receiver (TU-DSF30/S3) is connected for the linked timer recordings.

Ext Link 2

When an external equipment with a timer function is connected for the linked timer recordings.

- If you connect an other equipment with RGB output capability to the AV2 socket on this unit, the output signal of the equipment must be set to RGB when you have set "AV2 Input" to "RGB (PAL only)".
- This setting is fixed with "EXT" if you set "TV System" to "NTSC".

Entering a password (Ratings)

You can limit play of DVDs unsuitable for some audiences, children, for example. Play and changes to the settings are not possible unless you enter a password.

When setting ratings

The password screen is shown when you select levels 0 to 7.

- 1) Input a 4-digit password with the numeric buttons **4**.
 - If you enter a wrong number, press [**◀**] **10** to erase it before you press [ENTER] **10**.
 - **Do not forget your password.**

2) Press [ENTER] **10**.

3) Press [ENTER] **10**.

The password is entered and the unit is locked.

Now, when you insert a DVD-Video that exceeds the ratings limit you set, a message appears on the television. Follow the on-screen instructions.

When changing ratings

The password screen is shown when you select "Ratings".

- 1) Input a 4-digit password with the numeric buttons **4** and press [ENTER] **10**.

- | | |
|--------------------------|---|
| Unlock Recorder: | To unlock the unit and return the rating to 8 |
| Change Password: | To change your password |
| Change Level: | To change the rating level |
| Temporary Unlock: | To temporarily unlock the unit (the unit locks again if you switch it to standby or open the disc tray) |

- 2) Select the item with [**▲**, **▼**] **10** and press [ENTER] **10**.
Actual screens depend on the operation. Follow the on-screen instructions.

Digital output

Change these settings when you have connected equipment through this unit's OPTICAL DIGITAL AUDIO OUT terminal.

PCM Down Conversion

Off (Factory preset):

When you have used audio cables to connect the unit to other equipment (analog connection [B] page 55).

On:

When you have used an optical digital cable to connect the unit to other equipment (digital connection [A] page 55). Output is limited to 48 kHz/16 bit.

Output of audio with a sampling frequency of 96 kHz

Audio is output as follows in accordance with the connections and settings you make.

Setting	Connection	
	[A] (digital)	[B] (analog)
Off	No output*1	Output as 96 kHz
On	Converted and output as 48 kHz/16 bit	Converted and output as 48 kHz

*1 Audio is output at 96 kHz if the DVD is unprotected, but the connected equipment must be able to handle such signals in order to play them.

Dolby Digital

Bitstream (Factory preset):

When you have connected a unit with a built-in Dolby Digital decoder.

PCM:

When you have connected a unit that doesn't have a built-in Dolby Digital decoder.*2

DTS

Off (Factory preset):

When you have connected a unit that doesn't have a built-in DTS decoder.*2

Bitstream:

When you have connected a unit with a built-in DTS decoder.

MPEG

Bitstream:

When you have connected a unit with a built-in MPEG decoder.

PCM (Factory preset):

When you have connected a unit that doesn't have a built-in MPEG decoder.*2

*2 Set "Dolby Digital" to "PCM", "DTS" to "Off" and "MPEG" to "PCM" if the other equipment doesn't have decoders. Incorrect settings can cause noise to be output which can be harmful to your ears and speakers, and audio will not be recorded properly to digital recording equipment.

Clock Settings

Usually, the units Auto Setup or Download function automatically adjusts the clock to correct time.

Under some reception conditions, however, the unit cannot set the clock automatically.

In this case, follow the operation steps below to manually set the clock.

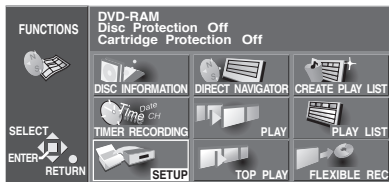
Manual Clock Setting

Preparation

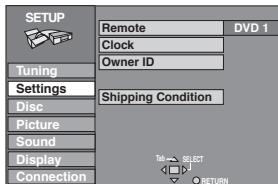
- Switch [DVD, TV] **15** to "DVD".
- Press [FUNCTIONS] **11** to show the FUNCTIONS window.

- 1 Use [▲, ▼, ◀, ▶] **10** to select "SETUP" and press [ENTER] **10**.

- The SETUP screen appears.

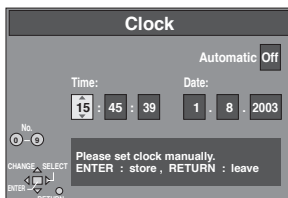


- 2 Use [▲, ▼] **10** to select the "Settings" tab and press [◀] or [▶] **10**.



- 3 Use [▲, ▼] **10** to select "Clock" and press [ENTER] **10**.

- 4 Use [▲, ▼] **10** to select "Off" of "Automatic" and press [ENTER] **10**.

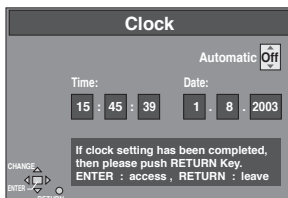


- 5 Use [◀, ▶] **10** to select the item you want to change.

- The items change as follows:
Hour→Minute→Second→Day→Month→Year

- 6 Use [▲, ▼] **10** to change the setting and press [ENTER] **10**.

- You can also use the numeric buttons **4** for setting.



- 7 Press [RETURN] **23**.

- The SETUP screen reappears and the clock starts.

Auto Clock Setting

If a TV station transmits a signal for time setting, performing the operation steps below activates the Automatic time correction function and time is corrected automatically.

Preparation

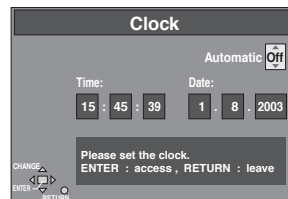
- Switch [DVD, TV] **15** to "DVD".
- Press [FUNCTIONS] **11** to show the FUNCTIONS window.

- 1 Use [▲, ▼, ◀, ▶] **10** to select "SETUP" and press [ENTER] **10**.

- The SETUP screen appears.

- 2 Use [▲, ▼] **10** to select the "Settings" tab and press [◀] or [▶] **10**.

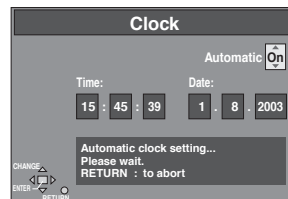
- 3 Use [▲, ▼] **10** to select "Clock" and press [ENTER] **10**.



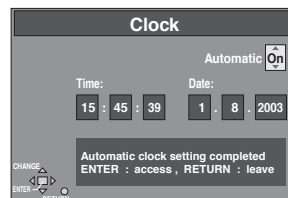
- 4 Use [▲, ▼] **10** to select "On" of "Automatic" and press [ENTER] **10**.

- Auto clock setting starts.

- Under adverse reception conditions, etc., the automatic time correction function may not work. In this case, the indication for "Automatic" is automatically reset to "Off". If the reception conditions improve later on, it may be possible to activate this function.



- The following screen appears when setting is complete.



- 5 Press [RETURN] **23**.

To stop auto clock setting

Press [RETURN] **23**.

Note

- If "Automatic" is set to "On" when you open the Clock screen, do not set it to "Off", otherwise, the automatic time correcting function is deactivated.
- When "Automatic" on the Clock setting menu is set to "On", the automatic time correction function checks and if necessary adjusts the time several times every day.
- In case of a power failure, an automatic back-up system automatically maintains the operation of the clock for approximate 120 minutes.

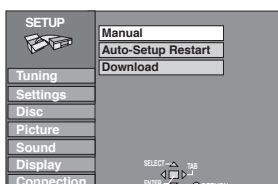
Channel Settings

Preparation

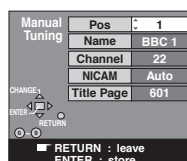
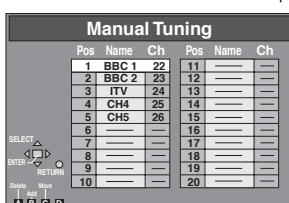
- Switch [DVD, TV] **15** to "DVD".
- Press [FUNCTIONS] **11** to show the FUNCTIONS window.

Selecting the manual tuning

- 1 Use [▲, ▼, ◀, ▶] **10** to select "SETUP" and press [ENTER] **10**.
• The SETUP screen appears.
- 2 Use [▲, ▼] **10** to select the "Tuning" tab and press [◀] or [▶] **10**.
- 3 Use [▲, ▼] **10** to select "Manual" and press [ENTER] **10**.



- 4 Use [▲, ▼] **10** to select the TV station that you want to tune and press [ENTER] **10**.
• The TUNING BOX screen appears.



Handling the TUNING BOX screen

Use [▲, ▼, ◀, ▶] **10** to select the desired field and press [ENTER] **10**.

Pos:

To change the order in which the TV stations are assigned to the programme positions.
Press the numeric buttons **4** to enter the number of the desired programme position.

Name:

To enter or change the name of a TV station.
Use [▲, ▼, ◀, ▶] **10** to enter station name and press [ENTER] **10**.
• If the station name needs a blank space, select the blank between [Z] and [*].

Channel:

To enter newly available TV stations or change the channel number of an already tuned TV station.
Press the numeric buttons **4** to enter the channel number of the desired TV station.
• Wait a few moments until the desired TV station has been tuned.
• After the desired TV station is tuned, press [ENTER] **10**.

NICAM:

To select the type of sound to be recorded.
Use [▲, ▼] **10** to select "Auto".
• Select "Off" if you want to record the normal (mono) sound during a stereo, bilingual or NICAM broadcast, or if the stereo sound is distorted due to inferior reception conditions.

Title Page:

To select the title extraction from TV guide of broadcaster.
Use [▲, ▼] **10** to select the number between 100 and 899.
• In case of a TV station with Teletext information, the title of the TV programme is entered automatically, provided the "Title page" is correctly set.
• In case of a TV station with Teletext information, the name of the TV station is recorded automatically.
• The unit's clock must be set correctly.
• In case of a TV station with Teletext information, it may take over 30 minutes to get the title or may fail to get (pages 37, 42).

- 5 Press [RETURN] **23**.

Adding, deleting and moving channels

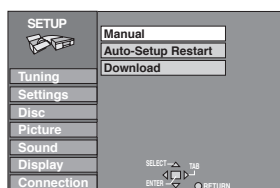
Use this function if:

- Channels were not set correctly using automatic tuning.
- A channel that should have been set wasn't.
- A channel's reception is poor and you want to delete it.

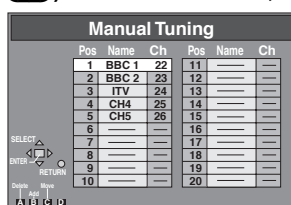
Preparation

- Switch [DVD, TV] **15** to "DVD".
- Press [FUNCTIONS] **11** to show the FUNCTIONS window.

- 1 Use [▲, ▼, ◀, ▶] **10** to select "SETUP" and press [ENTER] **10**.
• The SETUP screen appears.
- 2 Use [▲, ▼] **10** to select the "Tuning" tab and press [◀] or [▶] **10**.
- 3 Use [▲, ▼] **10** to select "Manual" and press [ENTER] **10**.



- 4 Use [▲, ▼, ◀, ▶] **10** to select the desired TV station and use the [A], [B], [C] buttons (**29**, **28**, **33**) to select "Delete", "Add", "Move".



Follow the operations below.

To delete a programme position "Delete":

Press [A] **29**.

To insert a blank programme position "Add":

Press [B] **28**.

To move a TV station to another programme position "Move":

Press [C] **33**, and then use [▲, ▼] **10** to select the new programme position to which you want to assign the TV station. Press [ENTER] **10**.

- 5 Press [RETURN] **23**.

Note

- Setting can take up to 3 minutes approximately.
- If downloading of the setup data has been performed, only the instruction indication "Delete" appears.

Hint

- If you have performed Manual Tuning to enter TV stations, the [—] indication may appear under [Pos/Name] on the display when programming a VIDEO Plus+ timer recording.

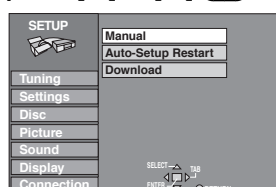
Auto-Setup Restart, Download

You can use the SETUP menus to start Auto Channel setting if Auto Setup (page 17) fails for some reason.

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Press [FUNCTIONS] **11** to show the FUNCTIONS window.

- 1 Use [▲, ▼, ◀, ▶] **10** to select "SETUP" and press [ENTER] **10**.
• The SETUP screen appears.
- 2 Use [▲, ▼] **10** to select the "Tuning" tab and press [◀] or [▶] **10**.



- 3 Use [▲, ▼] **10** to select "Auto-Setup Restart" or "Download".
- 4 Press [ENTER] **10** prepare for Auto Setup start or Download start.
• Press [ENTER] **10** again to actually start the Auto Setup or the Download.
- 5 A message appears asking you to confirm the operation.
• Actual screens depend on the operation. Follow the on-screen instructions.

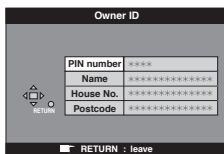
Changing the Owner ID

You can change the [PIN number], [Name], [House No.] and [Postcode].

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Press [FUNCTIONS] **11** to show the FUNCTIONS window.

- 1 Use [▲, ▼, ◀, ▶] **10** to select "SETUP" and press [ENTER] **10**.
 - The SETUP screen appears.
- 2 Use [▲, ▼] **10** to select the "Settings" tab and press [◀] or [▶] **10**.
- 3 Use [▲, ▼] **10** to select "Owner ID" and press [ENTER] **10**.
- 4 Use [▶] **10**, and then use the numeric buttons **4** or [▲, ▼, ◀, ▶] **10** to enter the current [PIN number].
 - After entering the correct [PIN number], you can change the [Name], [House No.] and [Postcode].



- 5 Press [ENTER] **10** to conclude the setting.
- 6 Use [▲, ▼, ◀, ▶] **10** and [ENTER] **10** to select and change the desired information.
- 7 Press [RETURN] **23** to exit the Owner ID setting menu.

■ To Display the Owner ID setting menu

While stopped

Hold down [■] **7** on the main unit for more than 5 seconds.

- The PIN number is not displayed.
- After 30 seconds, this menu automatically disappears.

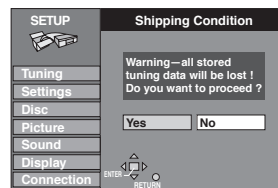
Shipping Condition

The all settings in the SETUP screen return to the factory settings. (except for the ratings level and the password, and owner ID settings)

Preparation

- Switch [DVD, TV] **15** to "DVD".
- Press [FUNCTIONS] **11** to show the FUNCTIONS window.

- 1 Use [▲, ▼, ◀, ▶] **10** to select "SETUP" and press [ENTER] **10**.
 - The SETUP screen appears.
- 2 Use [▲, ▼] **10** to select the "Settings" tab and press [◀] or [▶] **10**.
- 3 Use [▲, ▼] **10** to select "Shipping Condition" and press [ENTER] **10**.



- 4 Use [◀, ▶] **10** to select "Yes" and press [ENTER] **10**.
- 5 Use [◀, ▶] **10** to select "Yes" and press [ENTER] **10**.

Status displays

Changing the information displayed

Displays appear on the television when you operate the unit to let you know what operation was performed and what condition the unit is in.

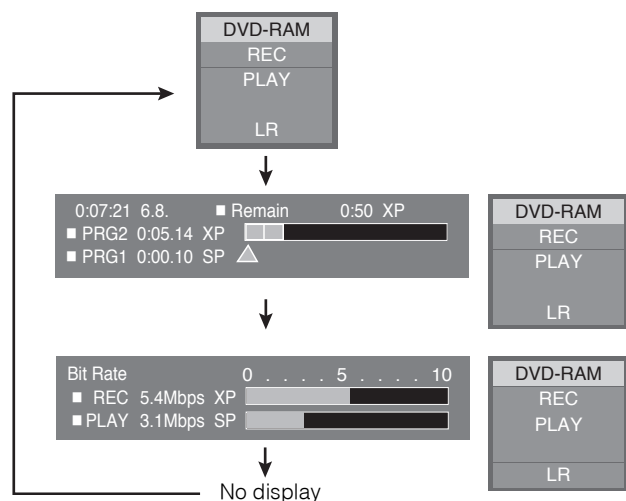
Remote control only

Preparation

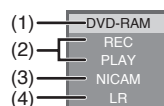
- Switch [DVD, TV] **15** to "DVD".

Press [STATUS] **28** to change the information displayed.

The display changes each time you press the button.
For example, DVD-RAM



Display examples



(1) Current media

(2) Current recording or play status, input channel

- Shows the current state of the unit, and the input channel.

REC: Recording

PAUSE: Recording paused

PLAY: Playing

II: Playing Paused

▶▶: Fast forwarding (5 speeds)

◀◀: Rewinding (5 speeds)

▶: Slow-motion (5 speeds)

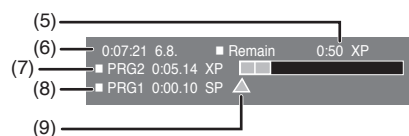
◀: Reverse slow-motion (5 speeds)

(3) Audio type

- Automatic indication of the type of sound system which the programme being watched (NICAM/MONO) is broadcast.

(4) Sound mode

LR, L, R: when you have changed the audio with the remote control's [AUDIO] **31**



(5) Available recording time and recording mode

(e.g.: "0:50 XP" indicates 50 minutes in XP mode)

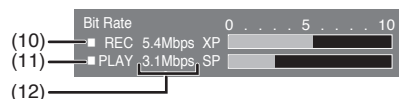
(6) The current date and time

(7) Recording time

- Shows recording time, recording mode and a rough guide to how much space has been used for recording on the disc.

(8) Elapsed play time

(9) Play position



(10) Video bit-rate when recording

(11) Video bit-rate when playing

(12) Bit-rate display

- Shows as Mbps (Mega-bit per seconds) during play and recording, or kbit (kilobit) while paused.
- The method of calculating bit-rate for recording and playing is different so there may be differences in the figures displayed. (Values are approximate.)

For your reference

- These displays may not be shown if "On-Screen Messages" in the "Display" menu is set to "Off" (page 61). If set to "Automatic", displays (1), (2), (3) and (4) appear for 5 seconds and then disappear.

Maintenance and Handling

Maintenance

To clean this unit, wipe with a soft, dry cloth.

- Never use alcohol, paint thinner or benzine to clean this unit.
- Before using chemically treated cloth, read the instructions that came with the cloth carefully.

Dust and dirt may adhere to the unit's lenses over time, possibly making it impossible to record or play discs.

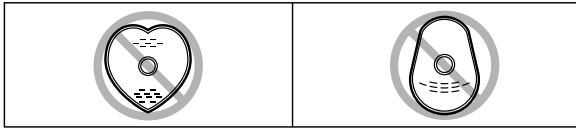
Use the recommended **DVD-RAM/PD lens cleaner** every 1 to 4 months, depending on frequency of use and the operating environment. Read the lens cleaner's instructions carefully before use.

- The lens cleaner may make some sound during use but this does not indicate a malfunction.
- "NO READ" appears on the unit's display when cleaning finishes.

The precision parts in this unit are readily affected by the environment, especially temperature, humidity, and dust. Observe the following points to ensure continued listening and viewing pleasure.

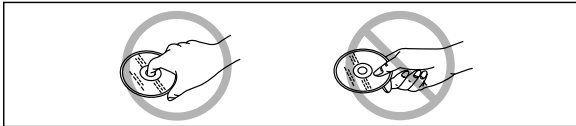
Disc handling

Do not use irregularly shaped discs, such as heart-shaped.
(These can damage the unit.)



■ How to hold a disc

Do not touch the recorded surface.



■ If there is dirt or condensation on the disc

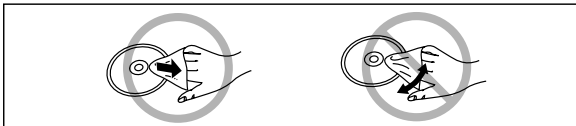
If the disc is dirty, wipe with a damp cloth and then wipe dry.
Moisture may condense on discs after they are brought inside from the cold.

DVD-RAM and DVD-R

- Clean and dry with the DVD-RAM/PD disc cleaner. Do not use cleaners or clothes for CDs to clean DVD-RAM and DVD-R.
- Never use cloths or cleaners for CDs, etc.

DVD-Video, Video CD and CD

Wipe it with a damp cloth and then wipe dry.



■ Handling precautions

- Do not write on the label side with a ball-point pen or other writing instrument.
- Do not use record cleaning sprays, benzine, thinner, static electricity prevention liquids or any other solvent.
- Do not attach labels or stickers to discs. (Do not use discs with exposed adhesive from tape or left over peeled-off stickers.)
- Do not use scratch-proof protectors or covers.
- Do not use discs printed with label printers available on the market.
- Do not use discs that are badly warped or cracked.

■ Do not place or store discs in the following places

- Locations exposed to direct sunlight
- Humid or dusty locations
- Locations directly exposed to a heat vent or heating appliance.

Bitstream

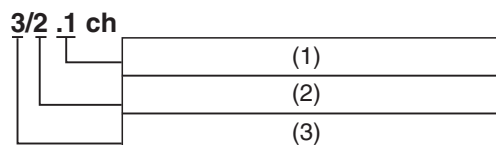
This is the compressed form of digital signals. A decoder decodes these signals into 5.1 surround and multi-channel signals.

Channel (when referring to DVD)

Sound is divided into channels based on the sound's role. For example, 5.1 channel

- Front speakers—1 left channel and 1 right channel
- Center speaker—1 channel
- Surround speakers—1 left channel and 1 right channel
- Subwoofer—1 channel×0.1 (the ratio of bass to the total amount of sound output)

Examples as shown in the status display



- (1) 1: Subwoofer signal
(not displayed if there is no subwoofer signal)
- (2) 0: No surround
1: Mono surround
2: Stereo surround (left/right)
- (3) 1: Center
2: Front left+Front right
3: Front left+Front right+Center

DIRECT NAVIGATOR

This is a list of programmes you have recorded. You can select programmes from the list to view. The list also shows the date and time of recording, the channel, and the titles of titled programmes. The selected programme is played in the background, making selection even simpler.

Dolby Digital

This is a method of coding digital signals developed by Dolby Laboratories. Apart from stereo (2 channel) audio, these signals can also be 5.1-channel audio. A large amount of audio information can be recorded on one disc using this method.

Dolby Pro Logic

A surround system where a 4-channel audio track is recorded as 2 channels and then is restored to 4 channels for play. The surround channel is monaural.

DTS Digital Surround

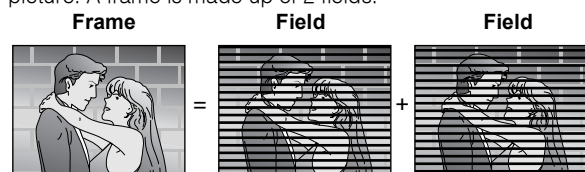
This surround system is used in many movie theaters around the world. The separation between channels is good and the compression ratio is low, so realistic sound effects are possible. DTS soundtracks are produced with the assumption that all channels will be used.

Finalize

This process allows DVD-R to be played on compatible equipment.

Frame and field

Frames are the still pictures that go together to make a moving picture. A frame is made up of 2 fields.



- A frame still is made up of two alternating fields, so the picture may appear blurred, but overall quality is high.
- A field still is not blurred, but it has only half the information of a frame still so picture quality is lower.

Linear PCM

This is a form of signal that has been digitized without compressing it. CDs are recorded with 44.1 kHz/16 bit PCM, while DVDs use PCM between 48 kHz/16 bit and 96 kHz/24 bit, allowing reproduction of greater quality sound.

The linear PCM signals output from the DIGITAL AUDIO OUT, OPTICAL terminal are stereo (2 channel).

NICAM (NICAM Broadcasting System)

This is a 2 channel sound broadcast system which in most instances provides high quality stereo sound. Broadcasters can also transmit two separate mono soundtracks on this system.

Pan&Scan/Letterbox

In general, DVD-Video are produced with the intention that they be viewed on a widescreen television with an aspect ratio of 16:9. This means you can view most material with the intended aspect ratio on a widescreen television.

Material with this ratio will not fit onto a standard television with an aspect ratio of 4:3. Two styles of picture, "Pan&Scan" and "Letterbox", deal with this problem.

Pan&Scan: The sides are cut off so the picture fills the screen.



Letterbox: Black bands appear at the top and bottom of the picture so the picture itself appears in an aspect ratio of 16:9.



Playback control (PBC)

This is a method of playing Video CDs. You can select parts to play by using menus recorded on the disc.

PLAY LIST

This is a collection of scenes. It enables you to play these scenes in succession or to select specific ones to play.

Programme (PRG)

The section between the point where recording is started and the point where it is stopped.

Sampling frequency

This is the number of samples of sound taken per second during conversion to a digital signal. A high sampling frequency results in a sound close to the original when played back.

S-video output

The colour and luminance signals are separated before being sent to the television, making for greater picture clarity.

RGB Output

[RGB] means separate Red/Green/Blue colour signals (PAL only). If you connect a TV equipped with RGB input capability to the AV1 socket on this unit, and a decoder equipped with RGB output capability to the AV2 socket, the TV can receive RGB signal input from the decoder via the unit.

Q Link

This function works only if the unit is connected via a fully-wired 21-pin Scart cable to a TV featuring the Q Link or similar function.

Q Link offers the following functions:

1) Download from the TV*

When you connect the unit to a TV, the station list data is automatically copied from the TV to the unit, and the TV stations are assigned to the programme positions on the unit in the same order as on the TV.

2) Direct TV Recording

By simply pressing [DIRECT TV REC] **17**, you can at once record the same programme that you are watching on the TV.

3) TV/DVD Auto On*

While the TV and the unit are in standby, pressing [▶] **21**, [TOP MENU, DIRECT NAVIGATOR] **9**, [VIDEO Plus+] **2** or [PROG/CHECK] **13** automatically turns on both the TV and the unit.

If the TV is in standby and this unit is on, when you press the [FUNCTION] **11** or the [▶] **21**, or insert the disc (except DVD-RAM and DVD-R), the TV automatically is turned on.

4) DVD Auto Standby*

If you switch the TV to standby, this unit will also switch to standby. However, this function only works when the unit is in Stop mode and not when the screen saver is displayed.

This function also does not work during the following: Preset Download, Auto Setup, Auto Clock Setting and Manual Tuning.

5) On-Screen Messages*

When you are watching a TV programme, the following unit messages appear on the TV screen to inform you of the unit's condition:

Message	Message appears when:
This programme has already started	A timer recording has just started.
Set DVD to timer standby mode	The unit is not in the timer standby mode 10 minutes before the programmed recording start time of a timer recording (message appears every minute during these 10 minutes).
DVD is in timer standby mode	[DVD, ⏻] 1 or [▲, OPEN/CLOSE] 39 was pressed, although the unit is in the timer standby mode.
DVD is in timer recording mode	[DVD, ⏻] 1 , [■] 7 , [●, REC] 16 , [⏏] 8 or [VIDEO Plus+] 2 was pressed while the unit is in the timer recording mode.

• Depending on the type of TV used, the above messages may not appear correctly.

* The operations marked with asterisk are only available if the unit is connected to a TV featuring the Q Link function.

PDC

PDC (Programme Delivery Control)

Programme Delivery Control adjusts the start and stop time of a timer recording automatically to ensure the recording starts and finishes in line with the programme broadcast. This is useful when a programme over-runs the published times.

The station must be transmitting PDC and the exact time must be set for PDC to work.

The unit detects whether a station is transmitting PDC only during the tuning process.

If PDC is introduced or discontinued by a station you will need to re-tune the unit before it becomes aware of this.

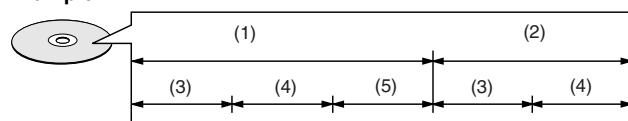
PDC transmissions are not currently nation-wide so please check with your local broadcaster for more information.

The beginnings of recordings may not be recorded correctly in some cases.

Title/Chapter (DVD-Video)

DVD-Video are divided up into large sections, titles, and smaller sections, chapters. The numbers allocated to these sections are called title numbers and chapter numbers.

Example

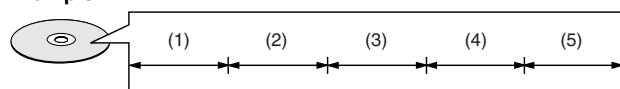


- (1) Title 1
- (2) Title 2
- (3) Chapter 1
- (4) Chapter 2
- (5) Chapter 3

Track

This is the smallest division on CD, and Video CD, and usually equates to a single song.

Example



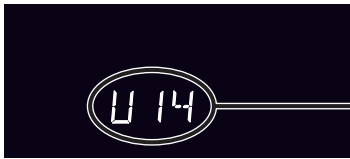
- (1) Track 1
- (2) Track 2
- (3) Track 3
- (4) Track 4
- (5) Track 5

Self-diagnosis

The self-diagnosis displays appear if a problem occurs with the unit.

The service numbers in the table appear when a problem occurs.

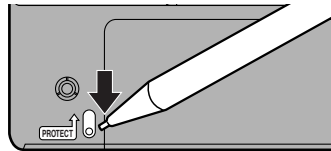
- The service numbers are a "U" followed by two digits.



Service number

Service number	Unit status	Solutions
NO READ	The disc is dirty or badly scratched.	<ul style="list-style-type: none"> • Follow the instructions in "Maintenance and Handling" to clean the disc if it is dirty. (page 68) • The disc cannot be played if it is scratched and this display doesn't disappear.
	It cannot be read for the disk which doesn't cope with it.	<ul style="list-style-type: none"> • It cannot be read for the disk which doesn't cope with it. Exchange a disk.
	The DVD-RAM/PD lens cleaner has finished cleaning.	<ul style="list-style-type: none"> • Take the cleaner out of the unit.
UNSUPPORT	You have inserted a disc the unit cannot play or record on.	<ul style="list-style-type: none"> • Insert a disc the unit can play or record on. (page 10)
U14	The unit is hot.	<ul style="list-style-type: none"> • The unit switches to standby automatically for safety reasons and you cannot operate it. Wait for about 30 minutes for the service number to disappear. • Select a position with good ventilation when installing the unit. • Do not block the cooling fan on the rear of the unit.
U99	The unit fails to operate properly.	<ul style="list-style-type: none"> • Press [⏻] to switch the unit to standby. Now press [⏻] again to turn the unit on.
RECOVER	A power failure occurred or the AC mains plug was disconnected while the power was ON.	<ul style="list-style-type: none"> • The unit is carrying out its recovery process. Wait until the message disappears.

Error displays

Error messages	Causes and solutions
No Disc.	<ul style="list-style-type: none"> You haven't inserted a disc. Correctly insert a disc that this unit can play. (page 20) The disc is upside down. If it is a single-sided disc, insert it so the label is facing up. (page 20)
This is a non-recordable disc. This disc is not properly formatted. Formatting is necessary using DISC INFORMATION.	<ul style="list-style-type: none"> The unit cannot record on the disc you inserted. The unit cannot record onto finalized DVD-R, DVD-Video, CDs or video CDs. Insert a DVD-RAM or unfinalized DVD-R. (page 10) You inserted an unformatted DVD-RAM. Format the disc with this unit. (page 39)
Please check write protect tab on the disc.	<ul style="list-style-type: none"> The write protect tab on the cartridge is set to "PROTECT". Use a ballpoint pen or similar to release the write protection. 
Contents of this disc are protected.	<ul style="list-style-type: none"> The programme is write-protected. Release the protection with the direct navigator. (page 43) The disc is write-protected. Release the protection with the disc protection sub menu of DISC INFORMATION. (page 38)
Cannot finish recording completely.	<ul style="list-style-type: none"> The programme was copy-protected. The disc is full. Recording was not completed for some other reason.
Cannot record on the disc.	<ul style="list-style-type: none"> The disc is scratched. Use another disc. The disc is dirty. Clean the disc as described in these operating instructions. (page 68)
Please set clock.	<ul style="list-style-type: none"> The clock is not set correctly. Reset the clock using "Manual Clock Setting". (page 63)
This disc may not be played in your region.	<ul style="list-style-type: none"> You tried to play a disc with a region number different from this unit's region number. This unit can play only play discs with the region numbers compatible with this unit. (page 10)
Your selection exceeds the recorder's rating limit.	<ul style="list-style-type: none"> A ratings level has been set for DVD-Video with this unit. Temporarily unlock the unit with "Ratings" in the disc menu. (page 62)
Error has occurred. Please press ENTER.	<ul style="list-style-type: none"> You can operate the unit using the [ENTER] 10 only. After you press the [ENTER] 10, turn off the unit and then turn it on. Recovery starts.
Please check the disc.	<ul style="list-style-type: none"> Check the discs for dirt or scratches. (page 68)
Please change the disc.	<ul style="list-style-type: none"> You can operate the unit using the [▲, OPEN/CLOSE] 39 only. Press [▲, OPEN/CLOSE] 39 to open the tray and eject a disc, the unit becomes off. To continue play or recording, insert an another disc.

Troubleshooting guide

Before requesting service, make the below checks. If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, consult your dealer for instructions.

Power

No power.	<ul style="list-style-type: none"> ● Insert the AC mains lead securely into the household mains socket.
The unit is on but cannot be operated.	<ul style="list-style-type: none"> ● The unit is hot ("U14" appears on the display). Wait for "U14" to disappear. ● One of the unit's safety devices may have activated. Reset the unit as follows: <ol style="list-style-type: none"> (1) Press [⏻/I] on the main unit to switch the unit to standby. If the unit doesn't switch to standby, press and hold [⏻/I] for about 10 seconds. The unit is forcibly switched to standby. Alternatively, disconnect the AC mains lead, wait one minute, then reconnect it. (2) Press [⏻/I] to turn the unit on.
The unit switches to standby automatically.	<ul style="list-style-type: none"> ● One of the unit's safety devices may have activated. Press [⏻/I] to turn the unit on.

Picture

No picture.	<ul style="list-style-type: none"> ● Make sure the television's input setting (e.g., AV1) is correct. (pages 12 - 14)
Television reception worsens after connecting the unit.	<ul style="list-style-type: none"> ● This can occur because the signals are being divided between the unit and the television. It can be solved by using a signal booster, available from audio-visual suppliers. Consult your dealer if reception does not improve.
Screen size is wrong.	<ul style="list-style-type: none"> ● Check the settings on your television. ● Check the settings for "TV Aspect", "Norm (4:3) TV Settings (DVD-Video)" or "Norm (4:3) TV Settings (DVD-RAM)" in the Connection menu. (pages 19 and 61)
The picture flickers.	<ul style="list-style-type: none"> ● Adjust the television's vertical hold. Read the television's operating instructions or consult your dealer.
On-screen messages do not appear.	<ul style="list-style-type: none"> ● Go to Display in the SETUP menus and select "Automatic" for "On-Screen Messages". (page 61) Press [STATUS] 28 to show the on-screen messages constantly.
The grey background does not appear.	<ul style="list-style-type: none"> ● Go to Display in the SETUP menus and select "On" for "Grey Background". (page 61)

Sound

No sound. Low volume. Distorted sound.	<ul style="list-style-type: none"> ● Check the connections. (pages 12 - 14) ● Check the input mode on the amplifier if you have connected one. (pages 54, 55 and 62) ● Turn V.S.S. OFF if it causes distortion. (page 52)
Cannot hear the desired audio type.	<ul style="list-style-type: none"> ● Press [AUDIO] 31 on the remote control to select the desired audio type. (page 23) DVD-R ● Go to Sound in the SETUP menus and choose the correct setting with "Bilingual Audio Selection". (page 60)
Cannot switch audio during stereo or NICAM broadcasts.	<ul style="list-style-type: none"> ● You have used digital connection. Connect to other equipment using audio cables (analog connection). (pages 14 and 55) ● You cannot change the audio type when using DVD-R.

Displays

The display is dim.	<ul style="list-style-type: none"> ● Go to Display in the SETUP menus and change the display's brightness with "FL Display". (page 61)
"0:00" is flashing on the unit's display.	<ul style="list-style-type: none"> ● The clock is not set. Go to Settings in the SETUP menus and set the clock with "Clock". (page 63)
"NO READ" appears on the unit's display after using a lens cleaner.	<ul style="list-style-type: none"> ● Take the cleaner out of the unit.

Play

<p>Play fails to start even when [▶] 21 is pressed.</p> <p>Play starts but then stops immediately.</p> <p>“NO READ”, “UN SUPPORT”, “NO DISC” or “NO PLAY” appears on the unit’s display.</p>	<ul style="list-style-type: none"> • Insert the disc correctly with the label facing up. (page 20) • This unit cannot play discs other than DVD-RAM, DVD-R, DVD-Video, Video CD, CD and MP3 disc. (page 10) • The disc is dirty. Clean it. (page 68) • The disc may be badly scratched. (page 68) • You inserted a blank DVD-RAM or DVD-R.
<p>No response when buttons pressed.</p>	<ul style="list-style-type: none"> • If “⊙” appears on the television, the operation is prohibited by the unit or disc. • If the unit is not operating at all, press [⊖, TIMER] 12 to switch the unit to standby, then press [⊖, TIMER] 12 again to turn the unit on. The unit may not be operating correctly due to lightning, static electricity, or some other external factor. • The Child Lock function is activated. (page 54)
<p>A title or chapter doesn’t play when it is selected.</p>	<ul style="list-style-type: none"> • Some titles and chapters on DVD-Video are not played when you have changed the ratings level. (page 62)
<p>Picture distorted during search.</p>	<ul style="list-style-type: none"> • Some distortion is normal.
<p>Alternative soundtrack and subtitles cannot be selected.</p>	<ul style="list-style-type: none"> • The languages are not recorded on the disc. • You may have to use the disc’s menus to select languages.
<p>Soundtrack/subtitle language not the one selected with the SETUP menus.</p>	<ul style="list-style-type: none"> • The language is not recorded on the disc. (page 59)
<p>No subtitles.</p>	<ul style="list-style-type: none"> • Subtitles are not recorded on the disc. • Turn the subtitles on. (page 51)
<p>Angle cannot be changed.</p>	<ul style="list-style-type: none"> • This function depends on software availability. Angles can only be changed during scenes where different angles are recorded (“Ⓜ” appears on the display).
<p>You have forgotten your ratings password.</p>	<ul style="list-style-type: none"> • Return the unit’s settings to the initial state (factory setting). With the tray open, keep pressing [◀◀/▶▶] and [▶▶/▶▶] 45 on the main unit simultaneously for 5 or more seconds.

Remote control

<p>The remote control doesn’t work.</p>	<ul style="list-style-type: none"> • The unit is on standby to make a timer recording (“⊙” on the unit’s display is on). (page 32) • [DVD, TV] 15 is not switched to “DVD”. Switch to “DVD” when operating this unit. (page 8) • The batteries are depleted. Replace them with new ones. (page 8) • Point the remote control at the remote control sensor on the main unit. (page 8) • Remove obstacles from between the remote control and main unit. • The Child Lock function is activated. (page 54)
<p>Cannot operate the television.</p>	<ul style="list-style-type: none"> • The remote control code is wrong. Change to the correct code. Some televisions cannot be operated even if you change the code. (page 9) • [DVD, TV] 15 is not switched to “TV”. Switch to “TV” when operating the television. (page 9)

Recording and timer recording

Cannot record.	<ul style="list-style-type: none"> • You haven't inserted a disc or the disc you inserted cannot be recorded on. Insert a disc the unit can record onto. (page 10) • The disc is unformatted. Format the disc so this unit can record on it. (page 39) • The write protect tab on the cartridge is set to "PROTECT". Use a ballpoint pen or similar to release the write protection. (page 72) • Recording is not possible unless you set "Disc Protection" in "DISC INFORMATION" to "Off". (page 38) • The disc is full or nearly full. Delete unneeded programmes or use another disc. (page 42) • The material you are trying to record is copy-guarded.
VIDEO Plus+ programming does not work properly.	<ul style="list-style-type: none"> • The clock is wrong. Go to Settings in the SETUP menus and correct the clock with "Clock". (page 63) • If "—" appears under "Name" after entering a VIDEO Plus+ number. (page 33)
Timer recording does not work properly.	<ul style="list-style-type: none"> • The timer programme is incorrect. Make corrections to the programme and check them when you are finished. (pages 33 and 34) • Make confirmation whether "Disc space" is "OK". When "Disc space" is "!", your timer programme doesn't work correctly. (page 35) • The unit is not on standby for timer recording. ("⊖" on the unit's display is not on.) • Different timer programme times overlap. (page 32) • The clock is wrong. Go to Settings in the SETUP menus and correct the clock with "Clock". (page 63)
The unit switches to standby while making a timer recording.	<ul style="list-style-type: none"> • The unit switches to standby while making a timer recording if the disc runs out of space. Use a disc that has enough space to record the programme.
The timer programme remains even after recording finishes.	<ul style="list-style-type: none"> • The programme remains if you select weekly or daily setting. (pages 33 and 34)
The available recording time doesn't increase even after erasing all recordings on the disc.	<ul style="list-style-type: none"> • The available recording time on DVD-R does not increase when you erase programmes. • The available recording time does not increase if you erase data written to the disc with the DVD-RAM drive of a computer. Format the disc if necessary. (page 39)

Discs make sounds as they rotate. This does not indicate a malfunction.

Specifications

Power supply: AC 220-240 V, 50 Hz
Power consumption: 29 W

Recording system: DVD video recording standards (DVD-RAM),
 DVD video standards (DVD-R)
Recordable discs: 12 cm 4.7 GB DVD-RAM
 12 cm 9.4 GB DVD-RAM
 8 cm 2.8 GB DVD-RAM
 12 cm 4.7 GB DVD-R
 (for General Ver.2.0)
Recording time: Maximum 360 min (with 4.7 GB disc)
 XP:Approx. 60 min SP:Approx. 120 min
 LP:Approx. 240 min EP:Approx. 360 min
Playable discs: 12cm 4.7GB DVD-RAM
 12cm 9.4GB DVD-RAM
 8cm 2.8GB DVD-RAM
 12cm 4.7GB DVD-R (for General Ver.2.0)
 DVD-Video
 CD-Audio (CD-DA)
 Video CD
 CD-R/RW
 (MP3, CD-DA, Video CD formatted discs)

Audio

Recording system: Dolby Digital, 2ch
Audio In: AV1/AV2 (21 pin) AV3/AV4 (pin jack)
Input Level: Standard: 0.5 Vrms
 Full scale: 2 Vrms at 1 kHz
Input Impedance: more than 10 kohm
Audio Out: AV1/AV2 (21 pin) Audio Out (pin jack)
Output Level: Standard: 0.5 Vrms
 Full scale: 2 Vrms at 1 kHz
Output Impedance: less than 1 kohm
Digital Audio Out: Optical terminal
 (PCM, Dolby Digital, DTS, MPEG)
MP3:
Bit-rate: 32 kbps-320 kbps
Sampling rate: 16 kHz, 22.05 kHz, 24 kHz, 32 kHz,
 44.1 kHz, 48 kHz,

Television System

Tuner System: PAL I 75 ohm
Channel Coverage: UHF : CH 21-68
RF Converter Output: UHF : CH 21-68, 75 ohm

Video

Video System: PAL colour signal, 625 lines, 50 fields
 NTSC colour signal, 525 lines, 60 fields
Recording system: MPEG2 (Hybrid VBR)
Video In: AV1/AV2 (21 pin), AV3/AV4 (pin jack)
 1 Vp-p 75 ohm, terminated
S-Video In: AV2 (21 pin), AV3/AV4 (S terminal)
 1 Vp-p 75 ohm, terminated
RGB In: AV2 (21 pin) 0.7 Vp-p (PAL) 75 ohm,
 terminated
Video Out: AV1/AV2 (21 pin), Video Out (pin jack)
 1 Vp-p 75 ohm, terminated
S-Video Out: AV1(21 pin), S-Video Out (S terminal)
 1 Vp-p 75 ohm, terminated
RGB Out: AV1(21 pin) 0.7 Vp-p (PAL) 75 ohm,
 terminated

Dimensions (W)×(H)×(D):

Approx. 430×79×283 mm

Mass: Approx. 3.8 kg

Operating Temperature: 5°C–40°C

Operating Humidity range:

10%–80% RH (no condensation)

LASER Specification

Class 1 LASER Product

Wave Length: 775-815 nm, 655-666 nm

Laser Power: No hazardous radiation is emitted with the safety protection

Note

Mass and dimensions shown are approximate.
 Specifications are subject to change without notice.

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